



Programmable Automation Controllers
MELSEC MX Controller



Ezi-STEP® CC-Link IE TSN
Micro Stepping System **ALL**

접속 가이드

MELSEC MX Controller and **Ezi-STEP**® CC-Link IE TSN Micro Stepping System **ALL**

미쓰비시 전기 제품

MXR300-16 / MXR300-32 / MXR300-64
MXR300-128 / MXR300-256 / MXF100-8
MXF100-16

파스텍 제품

Ezi-STEP CC-Link IE TSN ALL

시작하기 전에

- 저희 회사의 제품을 이용해 주셔서 감사합니다.
- Ezi-STEP CC-Link IE TSN ALL은 32비트 고성능 ARM 프로세서를 탑재한 드라이브와 다양한 모터로 구성된 스테핑모터 유닛으로, CC-Link IE TSN 네트워크에서 리모트국으로 사용됩니다.
- Ezi-STEP CC-Link IE TSN ALL은 산업용 제품입니다. 다른 용도로는 사용하지 말아 주십시오. 이를 준수하지 않아 손해가 발생한 경우에 저희 회사에서는 어떠한 책임도 지지 않습니다.
- 저희 회사에서 제공하는 이 접속 가이드는 미쓰비시 전기의 MELSEC MX 컨트롤러에 Ezi-STEP CC-Link IE TSN ALL을 연결하는 방법을 안내하는 자료로, CSP+ 파일 등록과 시스템 구성, 파라미터 설정, 프로그램 방법 등을 설명합니다.
- PLC 프로그램을 작성하기 전에 이 접속 가이드를 반드시 읽고, 내용을 정확히 이해하신 후 제품을 올바르게 사용하시기 바랍니다.
- 이 접속 가이드는 예고 없이 변경될 수 있습니다. 최신 버전이 필요하신 경우에는 저희 회사의 CC-Link IE TSN 홈페이지 (cltsn.fastech-motions.com)를 참고하시기 바랍니다.

매뉴얼 정보

- Ezi-STEP CC-Link IE TSN ALL 매뉴얼은 파스텍 홈페이지에서 다운로드할 수 있습니다.

<https://cltsn.fastech-motions.com/download/quick>

매뉴얼 명칭	매뉴얼 번호
[매뉴얼][Ezi-STEP][CC-Link IE TSN ALL]Open Loop Stepping System	
[접속가이드] [KOR] MELSEC MX Controller and Ezi-STEP CC-Link IE TSN ALL	

- MELSEC MX 컨트롤러 매뉴얼은 미쓰비시 전기 홈페이지에서 다운로드할 수 있습니다.

<https://www.MitsubishiElectric.co.jp/fa>

매뉴얼 명칭	매뉴얼 번호
MELSEC MX컨트롤러(MX-R모델) 유저즈매뉴얼	SH-082640
MELSEC MX컨트롤러(MX-R모델) 프로그래밍매뉴얼	SH-082643
GX Works3オペレーティング매뉴얼	SH-081214

용어

- 접속 가이드에서 사용되는 용어와 관련된 내용입니다.

용어	내용
CC-Link IE TSN	표준 이더넷 규격을 확장한 'TSN(Time-Sensitive Networking)'을 채택하여, 실시간성을 확보한 제어와 다른 오픈 네트워크의 정보를 동시에 처리할 수 있는 오픈 네트워크입니다.
마스터국(매니저국)	네트워크 전체를 관리하는 국으로, 모든 국과 사이클릭 전송 및 트랜지언트 전송을 할 수 있습니다. MELSEC MX 컨트롤러가 이에 해당합니다.
리모트국	비트 단위의 입출력 신호와 워드 단위의 입출력 데이터를 사이클릭 전송하는 국으로, 트랜지언트 전송도 가능합니다. Ezi-STEP CC-Link IE TSN ALL이 이에 해당합니다.
PDO	Process Data Object의 약칭입니다. 여러 CANopen 노드 간에 주기적으로 전송되는 애플리케이션 오브젝트의 집합체입니다.
오브젝트	CANopen에 대응하는 디바이스국이 보유한 다양한 데이터입니다.

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부록

- [동작확인] Axis Monitor
- [동작확인] 원점복귀 방법 변경
- [동작확인] 원점복귀
- [동작확인] Jog 운전
- [동작확인] 트러블 슈팅
- [파라미터] 원점복귀 파라미터 설정

1. 개요

1-1. 개요

- MELSEC MX 컨트롤러와 Ezi-STEP CC-Link IE TSN ALL 접속 가이드

- ◆ 마스터국: MXR300-16 / MXR300-32 / MXR300-64 / MXR300-128 / MXR300-256
MXF100-8 / MXF100-16

- PLCopen®Motion Control FB(Function Block)

- 국제 표준 규격인 PLCopen Motion Control FB 라이브러리를 사용하여 제어 프로그램을 쉽게 작성할 수 있습니다.
 - 이 프로그램은 제3자도 내용을 쉽게 파악할 수 있기 때문에 설계 및 유지보수 시간을 크게 단축할 수 있습니다.

- ◆ 엔지니어링 소프트웨어

- GX Works3 : Ver. 1.105K 이상
 - 최신 파일은 미쓰비시 전기 홈페이지를 참조하시기 바랍니다.
(<https://www.mitsubishielectric.com/fa/download/index.html>)

- ◆ 리모트국: Ezi-STEP CC-Link IE TSN ALL

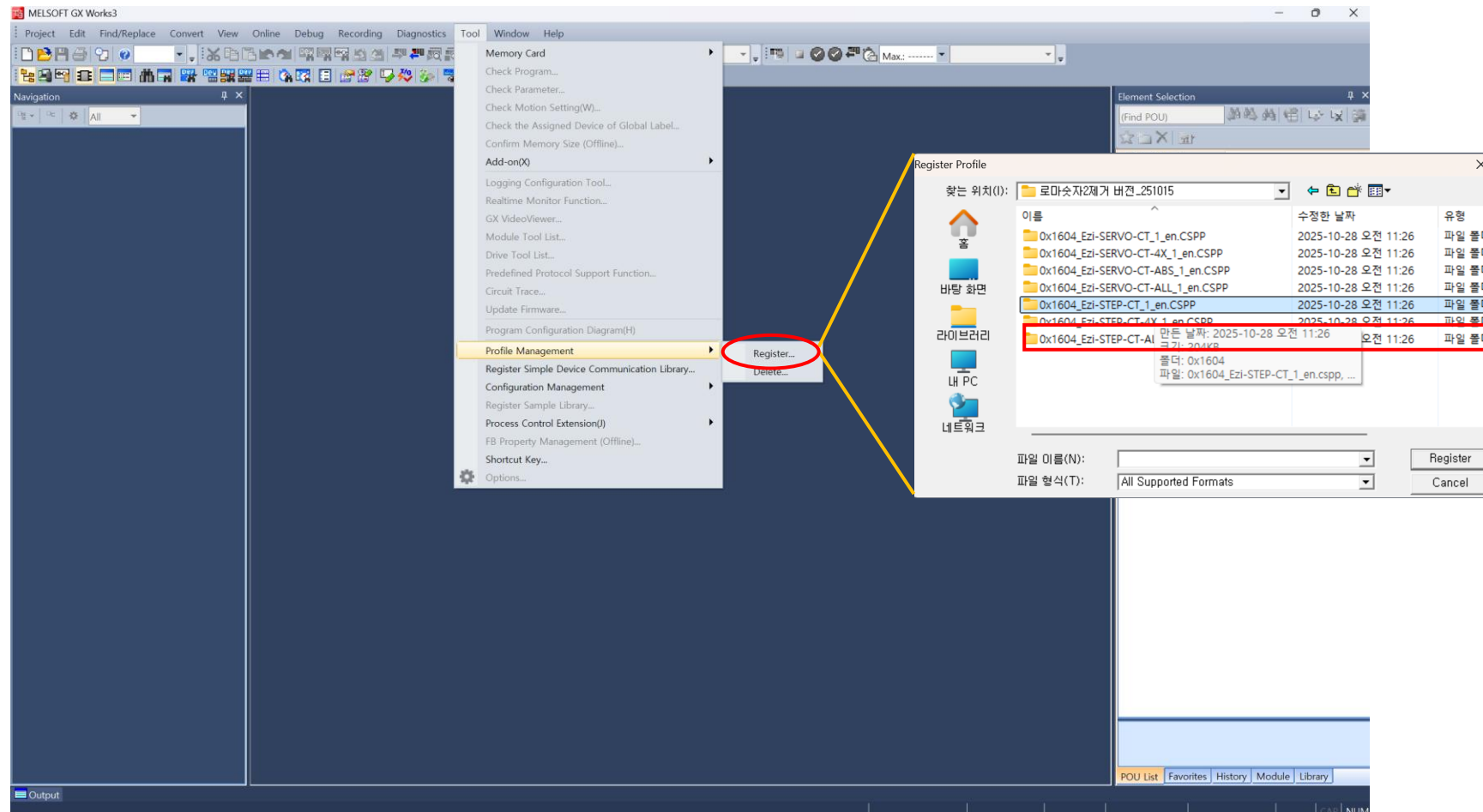
- CSP+ 파일 다운로드 주소: <https://cltsn.fastech-motions.com/download/quick>
 - 파일명 : 0x1604_Ezi-STEP-CT-ALL_1_en_CSPP

※ CSP+(Cyclic Synchronous Position Plus)는 산업용 네트워크를 통해 위치 명령을 주기적으로 전달하면서, 위치·속도·가속도(또는 토크) 정보를 함께 활용하여 보다 부드럽고 정밀한 궤적 제어를 가능하게 하는 제어 방식입니다.

1-2. Ezi-STEP CC-Link IE TSN ALL CSP+ 파일 등록

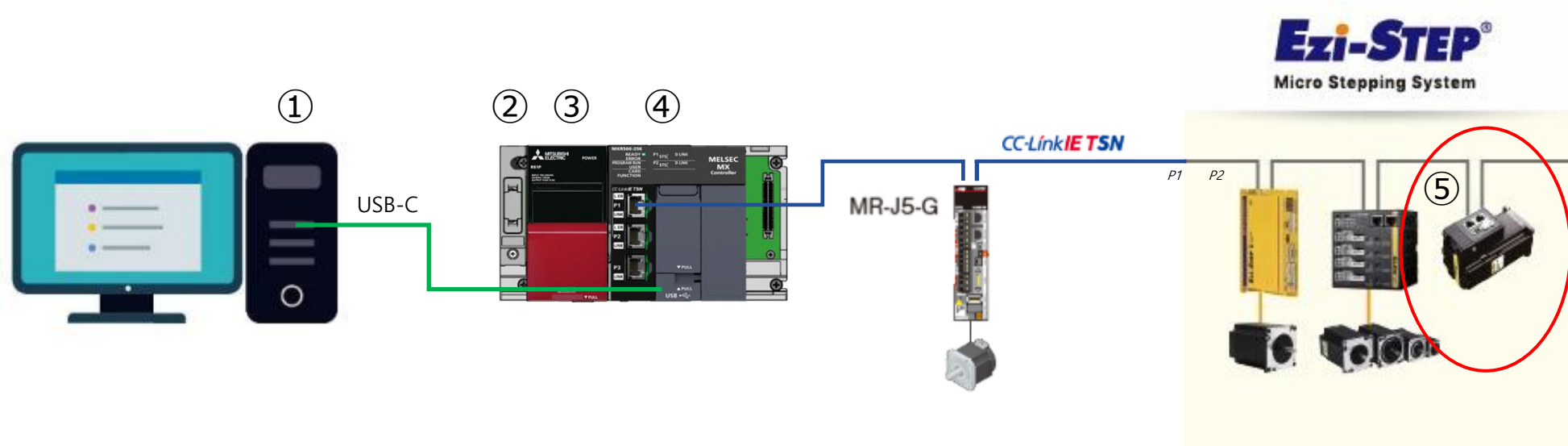
● CSP+ 등록

- [GX Works3] Tool / Profile Management / Register ※ Project를 열기 전에만 등록할 수 있습니다.



1-3. CC-Link IE TSN 구성

● 시스템 구성



구성	품명	IP 주소	
①	엔지니어링 소프트웨어	GX Works3	-
②	기본 베이스	R33B	-
③	전원 모듈	R61P	-
④	컨트롤러	MXR300-16	192.168.3.253
⑤	드라이브 + 모터	Ezi-STEP CC-Link IE TSN ALL	192.168.3.1



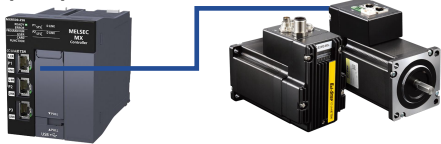
1-3. CC-Link IE TSN 구성

- Ezi-STEP 규격

항목		규격
통신 프로토콜		CC-Link IE TSN Class B
통신 속도		1Gbps / 100Mbps
동작 모드		CiA402 드라이브 프로파일 : 사이클릭 동기 위치 모드 (CSP) / 프로파일 위치 모드 (PP) / 원점복귀 모드 (HM)
동기 방식	시각 동기 방식	IEEE1588 / IEEE802.1AS
	통신 주기	최소 250 μ s
	네트워크 동기 통신	동기 통신 (CSP, PP, HM) / 비동기 통신 (PP, HM)
인코더 타입		인크리멘탈 타입

1-4. 설정 순서

- Ezi-STEP, MX 컨트롤러 파라미터 설정

No	항목	내용
1	Ezi-STEP 설정 	드라이브 설정 프로그램(Ezi-CT Manager)을 이용하여 파라미터를 설정합니다. 설정 프로그램과 사용 방법은 www.fastech.com 홈페이지에서 다운로드하시기 바랍니다. ※ 주소: https://cltsn.fastech-motions.com/download/quick
2	MX 컨트롤러 설정 	GX-Works3를 사용해 MX 컨트롤러의 프로젝트를 만든 다음, 유닛 파라미터 (통신 방식, 접속 대상)와 축 파라미터(모션 제어용)를 설정합니다.
3	MX 컨트롤러 + Ezi-STEP 동작 확인 	MX 컨트롤러와 Ezi-STEP이 올바르게 설정되어 있는지 확인하기 위한 프로그램을 작성합니다. 라벨을 조작해 모터가 정상적으로 작동하는지 확인합니다

1-4. 설정 순서

● Ezi-STEP 설정 참고 사항

항목	내용
IP 주소 설정	<ul style="list-style-type: none"> ① 드라이브의 로터리 스위치로 설정 ② 로터리 스위치 → '00', IP address (Index: 2101h, Subindex: 01~04h) 값으로 설정
드라이브 원점복귀 방법 설정	<ul style="list-style-type: none"> ① Homing method (Index: 6098h, Subindex:00h) 설정 - '0'(초깃값) → '33' 등 원점복귀 방법 설정 ※ [부록] 원점복귀 방법 참조 ② Home offset (Index: 607Ch, Subindex:00h) → '0' 설정 필요 주의) 0이 아닌 값을 설정하면, 원점복귀가 완료될 때 급가속하거나 급감속하는 경우가 있습니다.
리미트 정지 방법 설정	<ul style="list-style-type: none"> ① Limit stop method (Index:2003h, Subindex:00h) 설정 - 0: PP, HM → 급정지 / CSP → 정지하지 않음 - 1: PP, HM → 감속 정지 / CSP → 정지하지 않음 ② '0' 또는 '1'이 아닌 값을 설정하면, 하드웨어 스트로크 리미트를 감지할 때 '1ED0H: 드라이브 오류'가 발생할 수 있습니다
인포지션 범위	<ul style="list-style-type: none"> ① In-position range (Index:2B21h, Subindex:00h, Data type:Unsigned32) 설정 - 사용 환경을 고려하여 인포지션 범위(5~20000 pulse) 내의 값을 등록 ② [Md.102: 편차 카운터 값]이 이 설정값보다 작을 경우, [Md.108: 서보 상태 1: 인포지션]이 ON됩니다. 이 오브젝트는 공개하지 않는 것이 원칙이므로 FX5 CPU 모듈의 서보 트랜지언트 전송 기능을 이용하여 설정해 주십시오.

1-5. 제약 사항

● 모션 제어 기능 제약 사항 (MX 컨트롤러와 Ezi-STEP)

항목	제약 사항
토크 제한 기능	<p>드라이브가 아래 오브젝트를 지원하지 않아 토크 제한 기능을 사용할 수 없습니다.</p> <ul style="list-style-type: none"> • Positive torque limit value (Index:60E0h, Subindex:00h) • Negative torque limit value (Index:60E1h, Subindex:00h)
절대 위치 시스템	인코더가 인크리멘탈 타입이기 때문에 절대 위치 시스템을 사용할 수 없습니다.
가상 서보 앰프 기능	MR-J5-G로 에뮬레이트됩니다.
폴로 업(Follow up) 기능	<p>이 제품은 반드시 서보 ON 시에 원점복귀를 실시해 주십시오. 오픈 루프 제어 시스템이므로 서보 OFF 상태에서는 'Position actual value (Index:6064h, Subindex: 00h)'를 업데이트하지 않습니다. 폴로 업 기능에서는 'Position actual value (Index:6064h, Subindex:00h)'를 기준으로 모터의 회전량을 컨트롤러의 명령에 반영하기 때문에, 서보 OFF 중에 모터가 회전한 만큼 컨트롤러 명령과 모터의 위치가 어긋납니다.</p>
마크 검출 기능	[Pr.800: 마크 검출 신호 설정]에 드라이브의 TPR1(터치 프로브 1)을 사용할 수 없습니다.
임의 데이터 모니터 기능	<p>임의 데이터 모니터 기능을 사용할 경우, [Pr.91~94: 임의 데이터 모니터 데이터 종류 설정 1~4]와 [Pr.591~594: 임의 데이터 모니터 데이터 종류 확장 설정 1~4]에 모니터링할 오브젝트를 설정해 주십시오. 초깃값은 "0: 미설정"입니다. 따라서 [Md.109~112: 임의 데이터 모니터 출력 1~4]는 '0'이 됩니다.</p>

1-5. 제약 사항

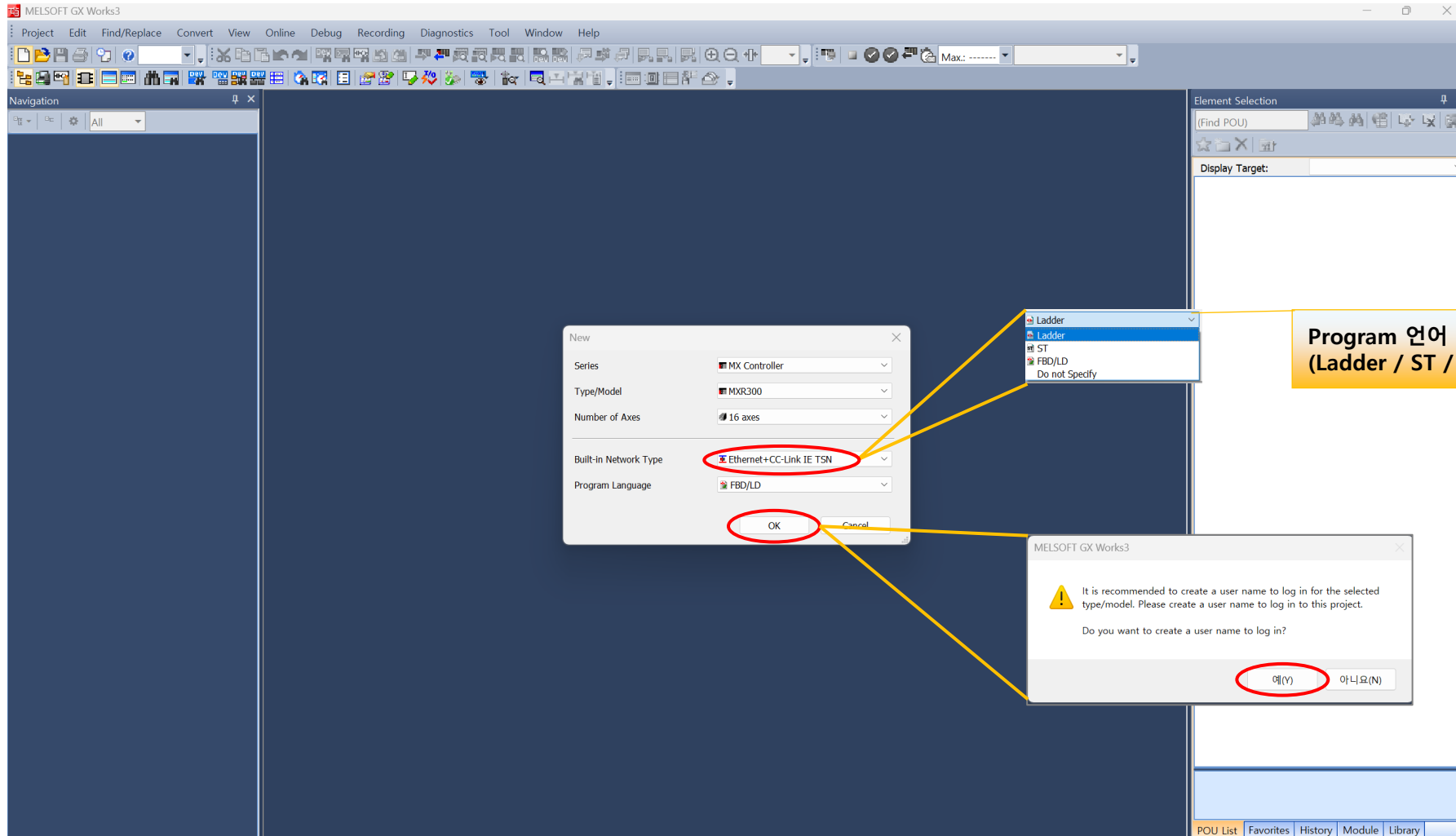
● 모션 제어 기능 제약 사항 (MX Controller와 Ezi-STEP)

항목	제약 사항
Md.103: 모터 회전수	드라이브가 'SI unit velocity (Index:60A9h, Subindex:00h)'를 지원하지 않기 때문에 pulse/s 단위로 모터 회전수를 출력합니다.
Md.104: 모터 전류값	드라이브가 'Torque actual value (Index:6077h, Subindex:00h)'를 지원하지 않기 때문에 항상 "0"으로 표시됩니다.
Md.108: 서보 상태 1	모니터 데이터 중 아래 비트는 항상 'OFF' 상태입니다. <ul style="list-style-type: none"> · 게인 전환 중 (b4) · 풀 클로즈드 제어 전환 중(b5) · 토크 제한 중(b13) · 절대 위치 소실 중 (b14) · 경고 중(b15)
Md.119: 서보 상태 2	모니터 데이터 중 아래 비트는 항상 'OFF' 상태입니다. <ul style="list-style-type: none"> · 영점 통과(b0) · 영속도 중(b3) · 속도 제한 중(b4) · PID 제어 중(b8)
Md.115: 서보 알람 상세 번호	지원되지 않습니다. 이 모니터 데이터는 항상 '0'으로 표시됩니다
Cd.108: 게인 전환 명령 플래그	지원되지 않습니다. MELSERVO만 이 데이터에 대응합니다.
Cd.133: 세미-풀 전환 요구	지원되지 않습니다. MELSERVO만 이 데이터에 대응합니다..
Cd.136: PI-PID 전환 요구	지원되지 않습니다. MELSERVO만 이 데이터에 대응합니다.

2. MX 컨트롤러 설정

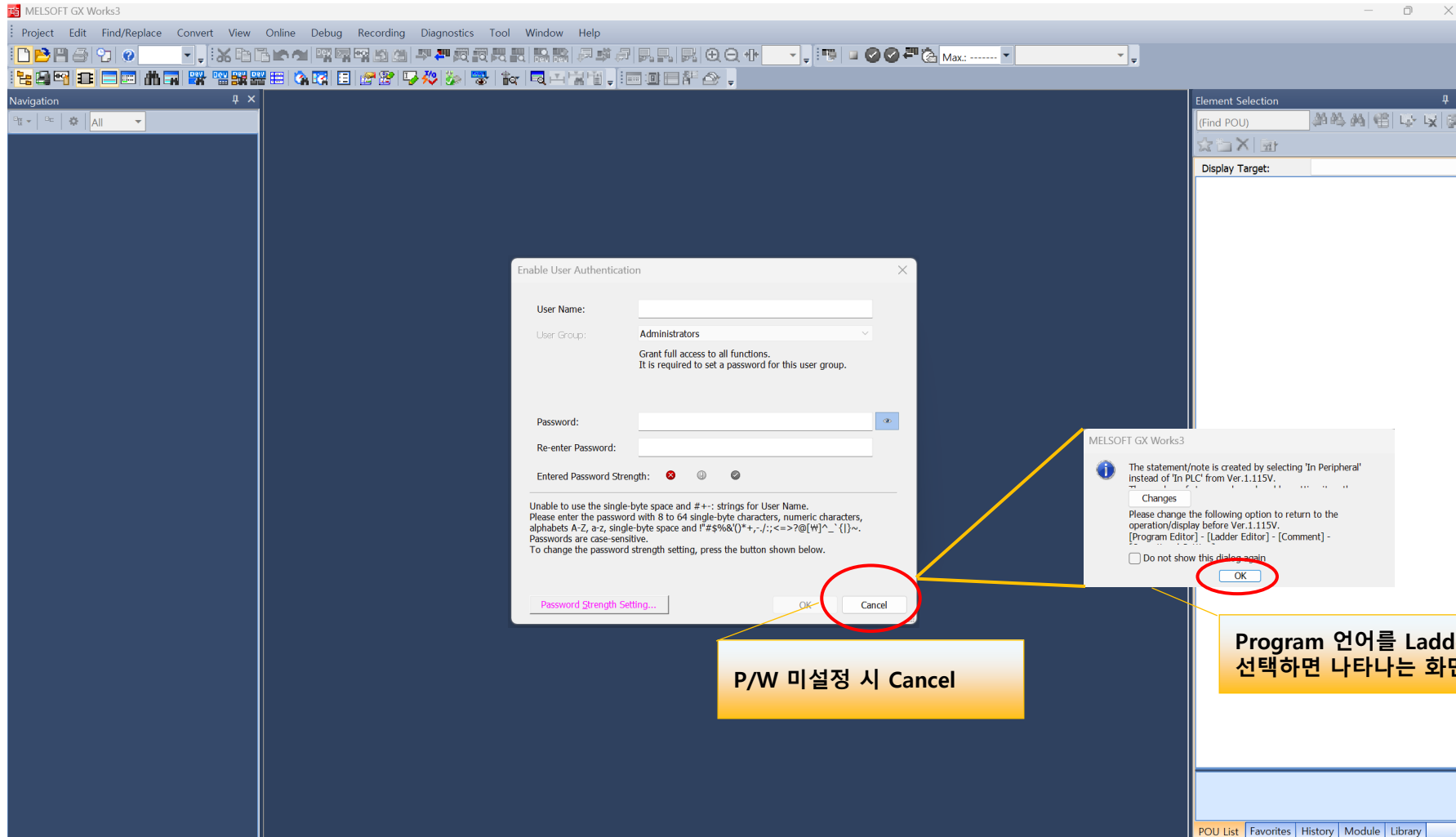
2-1. Project 생성

- 신규 Project 생성 시 MX Controller, 모델명, 사용 축수, Program 언어를 선택



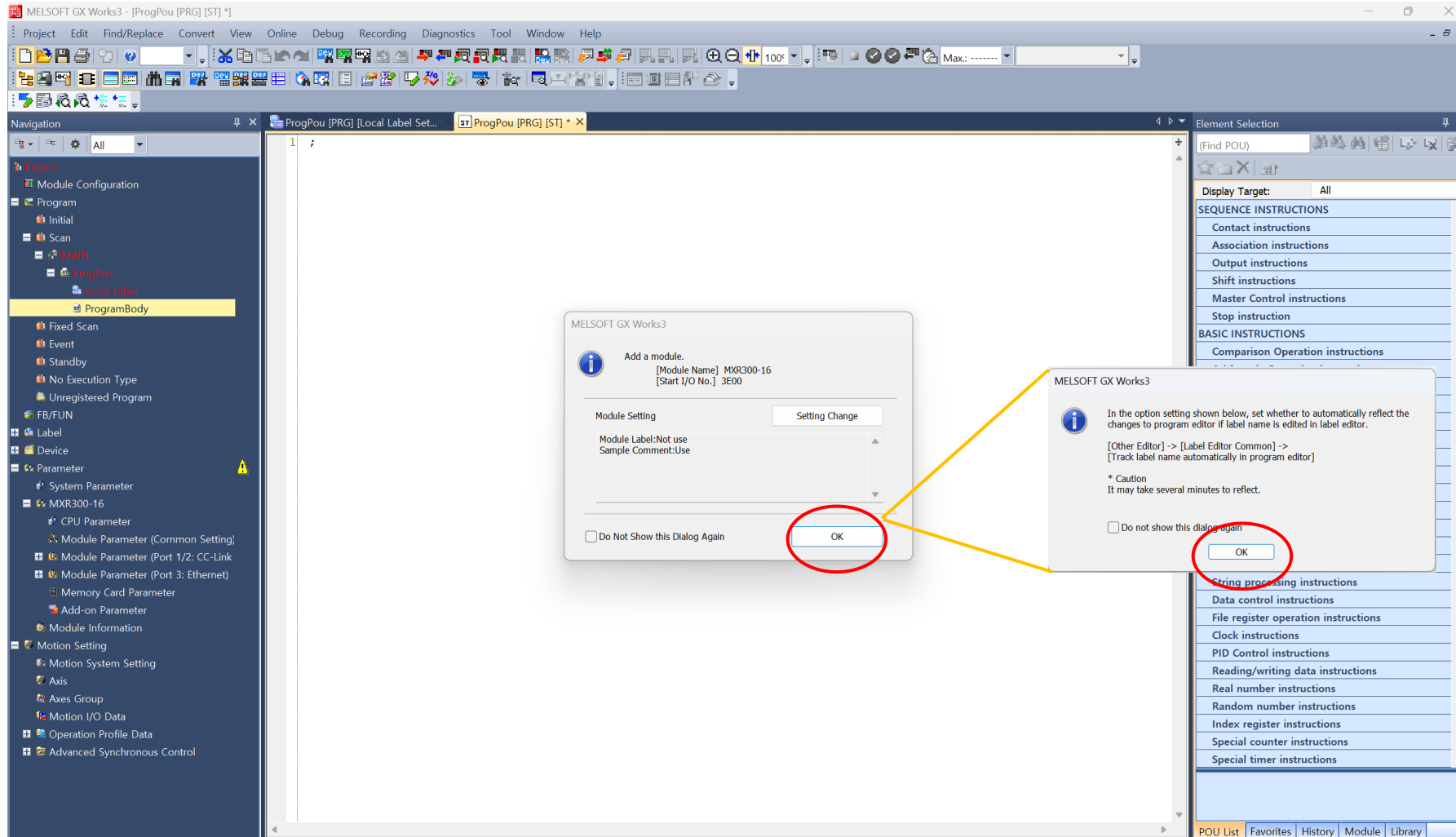
2-2. User Authentication 설정

- 비밀번호 설정 ※ 이 장에서는 Password 미설정으로 Cancel합니다.



2-3. Module 등록

- MXR300-xx 등록



2-4. Module Configuration – H/W

- 마우스로 클릭&드래그 하여 Main Base, CPU Module, Power Supply를 구성

The screenshot shows the MELSOFT GX Works3 software interface for module configuration. The main workspace is a grid where modules are placed. A callout box on the left contains the following text:

[클릭 & 드래그]
1. Main Base
2. Power Supply
3. MX Controller 장착

Numbered annotations (1, 2, 3, 4) point to specific elements: 1 points to the 'Module Configuration' tab in the left sidebar; 2 points to the 'R312B' module in the 'Element Selection' list; 3 points to the 'R61P' module in the 'Power Supply' section of the 'Element Selection' list; 4 points to a module being dragged on the grid. A text label '마우스 클릭 & 드래그' is placed near the grid. A dialog box in the bottom-left corner contains the following text:

MELSOFT GX Works3

When you finish editing Module Configuration, fix the parameters to reflect to their respective functions.

Do not show this dialog again.

You are able to change this setting through the Options menu.

OK

Module	Slots	Requirements
R325B	2 Slots	(Type requiring s
R33B	3 Slots	(Type requiring p
R335B	3 Slots	(Type requiring p
R35B	5 Slots	(Type requiring p
R355B	5 Slots	(Type requiring s
R38B	8 Slots	(Type requiring p
R38RB-HT	8 Slots	(Extended temp
R310B-HT	10 Slots	(Extended temp
R310RB	10 Slots	(Type requiring
R312B	12 Slots	(Type requiring

Module	Output
R61SP	2.5A output (Slim type p
R62P	3.5A output
R61P	6.5A output
R63P	6.5A output
R63RP	6.5A output (Redundant
R64P	9.0A output
R64RP	9.0A output (Redundant
R69P	9.0A output
R69RP	9.0A output (Redundant

2-4. Module Configuration – H/W

- 마우스의 오른쪽 버튼을 클릭하여 Fix(S) 선택으로 Module 구성을 완료

The screenshot displays the MELSOFT GX Works3 interface for Module Configuration. On the left, the 'Navigation' pane shows a tree view of the project structure, including 'Module Configuration', 'Program', 'Scan', 'Fixed Scan', 'Event', 'Standby', 'No Execution Type', 'Unregistered Program', 'FB/FUN', 'Label', 'Device', 'Parameter', 'Motion Setting', and 'Operation Profile Data'. The 'Parameter' folder is expanded, showing 'System Parameter', 'MXR300-16', 'CPU Parameter', and various 'Module Parameter' options. A context menu is open over a module icon in the main workspace, with the 'Fix(S)' option highlighted. A yellow callout box points to the 'Fix(S)' option with the text '마우스 오른쪽 버튼 클릭'. A warning dialog box is overlaid on the right, titled 'MELSOFT GX Works3', with a yellow warning icon and the text 'Fix the parameter. Are you sure you want to continue?'. The dialog box contains a '[Caution]' section with four numbered items: (1) If other PLC CPU module is deleted, refresh setting between multiple CPUs will be deleted. (2) Interlink transmission setting will be deleted if the following operations are executed for the module which can use interlink transmission setting. (3) Redundant module group setting will be deleted if the following operations are executed for the module which can use the redundant module group setting. (4) Copied module parameters and module extended parameters are copied to the pasted module. The dialog box also has '예(Y)' and '아니오(N)' buttons. The bottom right corner of the screenshot shows a table with columns for 'Output', 'I/O', and 'NC Dedicated Module', and rows for 'R325B' and 'Main Base Unit'.

Output	I/O	NC Dedicated Module
R325B		
[Outline]		
Main Base Unit		

POU List Favorites History Module Library

2-5. Module Parameter

- Station No./IP Address Setting : 예) IP Address → 192.168.3.253

1

2

3

IP Address : 192.168.3.253
※ 참고: Ezi-STEP CC-Link IE TSN ALL
Default IP: 192.168.3.xxx

Item	Setting
Station Type	Master Station
Network No.	1
Parameter Setting Method	Parameter Editor
Station No./IP Address Setting Method	Parameter Editor
Station No.	0
IP Address	192.168.3.253
Subnet Mask	
Default Gateway	

Explanation
Set the IP address for the own node.
Ensure that the own node and the external device to be communicated with have the same class and subnet address.
Set the IP address to use for CC-Link IE TSN communication.
[Setting Range]
0.0.0.1 to 223.255.255.254 (00.00.00.01 to FF.FF.FF.FE)

Apply

2-5. Module Parameter – N/W Configuration

● Network Configuration Settings

The screenshot displays the MELSOFT GX Works3 software interface for configuring the MXR300-16 module. The main window is titled "MELSOFT GX Works3 (Untitled Project) - [MXR300-16 Module Parameter (Port 1/2: CC-Link IE TSN)]".

Key elements and annotations:

- 1**: Points to the "Module Parameter (Port 1/2: CC-Link)" entry in the left-hand navigation tree.
- 2**: Points to the "Basic Settings" folder under "Network Configuration Settings (CC-Link IE TSN)" in the "Setting Item List" pane.
- 3**: Points to the "Refresh Settings" item in the "Setting Item List" pane.

The "Setting Item List" pane shows the following structure:

- Required Settings
 - Station Type
 - Network No.
 - Parameter Setting Method
 - Station No./IP Address Setting
- Basic Settings
 - Network Configuration Settings (CC-Link IE TSN)
 - Refresh Setting
 - Network Topology
 - Communication Period Setting
 - Connection Device Information
 - Device Station Setting
- Application Settings

The "Network Configuration Settings (CC-Link IE TSN Configuration)" window is open, showing the following settings:

- Refresh Settings
 - Refresh Settings: <Detailed Setting>
- Network Topology
 - Network Topology: <Detailed Setting>
- Communication Period Setting
 - Basic Period Setting
 - Setting in Units of 1us: Not Set
 - Communication Period Interval Setting (Do not Set It in Units of 1us): 2000.00 us
 - Communication Period Interval Setting (Set It in Units of 1us): 2000.00 us
 - System Reservation Time: 20.00 us
 - Cyclic Transmission Time: 1000.00 us
 - Transient Transmission Time: 980.00 us
 - Multiple Period Setting
 - Normal-Speed: x4
 - Low-Speed: x16
- Connection Device Information
 - CC-Link IE TSN Class Setting: CC-Link IE TSN Class B Only
 - CC-Link IE TSN Class A Group Send Upper Limit Size Setting: 2K bytes
 - TSN HUB Setting: Not to Use TSN HUB
- Device Station Setting
 - Disconnection Detection Setting: 4 times

The "CC-Link IE TSN Configuration (Start I/O: 0000)" window is also open, showing the "Mode Settings" tab with the following table:

No.	Host Station	Model Name	STA#	Station Type
0	Host Station		0	Master Station

The "Module List" window is open, showing the "CC-Link IE TSN Selection" tab with the following list of modules:

- General CO-Link IE TSN Module
- CC-Link IE TSN Module (Mitsubishi Ele)
- Master/Local Module
- Motion Module
- GOT3000 Series
- GOT2000 Series
- General-Purpose AC Servo
- General purpose Inverter
- DC Input
- Transistor Output
- I/O Combined
- Analog Input

The "Network Label" window is open, showing the "Network Label Usage Status" as "Unused in All Stations" and a warning message: "The network label only can be used by the remote station."

2-5. Module Parameter – CC-Link IE TSN Configuration

- N/W 연결된 상태 : CC-Link IE TSN Module을 자동으로 찾아서 구성

CC-Link IE TSN Configuration (Start I/O: 0000)

Connected/Disconnected Module Detection

Mode Setting: **Online (Local Mode)** Detailed Display Assignment Method:

No.	Model Name	STA#	Station Type	RX Setting Points	RY Setting Points	RW Setting Points	RWw Setting Points	Parameter Automatic Setting	PDO Mapping Setting	IP Address	Subnet Mask	Default Gateway
0	Host Station	0	Master Station							192.168.3.253		

1

Connected/Disconnected Module Detection

Read the information of the connected module, and execute the detection and reflection of connected/disconnected module. Do you want to execute?

- Please use the "Read from PLC" function when editing the configuration that is already in operation.
- Please check whether the Connection Destination PLC is correct.
- Please check whether the master module is set correctly.
- Please check "Description of Reflection Contents" for the reflection contents of the detected module.
- The mode setting has been changed to the detected mode. However, it has not been reflected to the module parameter. Please set the detected mode in the module parameter again.

2

Description of Reflection Contents **Execute** Cancel

Host Station

STA#0 Master Station
Total STA# : 0
Line/Slot

Network Label Output

Error Warning Information

2-5. Module Parameter – CC-Link IE TSN Configuration

- N/W 연결된 상태 : CC-Link IE TSN Module을 자동으로 Ezi-STEP CC-Link IE TSN ALL를 찾아서 구성

The screenshot shows the 'CC-Link IE TSN Configuration' window. A table lists the configuration for three Ezi-STEP CC-Link IE TSN ALL modules. A red box highlights the IP addresses for these modules: 192.168.3.17, 192.168.3.18, and 192.168.3.19. A yellow starburst callout points to the table with the text '자동으로 찾은 Module'. A 'Module List' panel on the right shows the search results for 'Ezi-STEP CC-Link IE TSN ALL'. A confirmation dialog box from MELSOFT GX Works3 is displayed in the center, with a red circle around the '확인' (OK) button. A yellow callout box on the right lists the IP addresses: 1. 192.168.3.17, 2. 192.168.3.18, 3. 192.168.3.19. At the bottom, a network diagram shows the host station connected to three Ezi-STEP CC-Link IE TSN ALL modules.

No.	Model Name	STA#	Station Type	RX Setting	RY Setting	RWr Setting	RWw Setting	Parameter Automatic Setting	PDO Mapping Setting	IP Address	Subnet Mask	Default Gateway
0	Host Station	0	Master Station							192.168.3.253		
1	Ezi-STEP-CT-ALL	1	Remote Station				16	16	<Detail Setting>	192.168.3.17		
2	Ezi-STEP-CT-ALL	3	Remote Station				16	16	<Detail Setting>	192.168.3.18		
3	Ezi-STEP-CT-ALL	6	Remote Station				16	16	<Detail Setting>	192.168.3.19		

[Ezi-STEP CC-Link IE TSN ALL 3축 구성 예]
[Ezi-STEP CC-Link IE TSN ALL 드라이버에 설정된 IP Address]

1. 192.168.3.17
2. 192.168.3.18
3. 192.168.3.19

자동으로 찾은 Module

MELSOFT GX Works3
Connected/Disconnected Module Detection is completed.
Please execute Write to PLC if necessary.
- Please execute system configuration check because the system configuration is changed.
확인

2-5. Module Parameter – CC-Link IE TSN Configuration

- N/W 미연결 상태 : CC-Link IE TSN Module을 수동(클릭 & 드래그)으로 구성

등록에 따라 생성됨

2

[Ezi-STEP CC-Link IE TSN ALL IP Address 임의로 수정]

1. 192.168.3.17
2. 192.168.3.18
3. 192.168.3.19

1

마우스 클릭 & 드래그 (반복)

[참고] Ezi-STEP CC-Link IE TSN ALL IP Address 설정 16진수 로터리 스위치

(x10) (x1)

SW2 SW2

[Manufacturer Name]
FASTECH Co. Ltd
[Station Type]

No.	Model Name	STA#	Station Type	RX Setting	RY Setting	RWr Setting	RWw Setting	Parameter Automatic Setting	PDO Mapping Setting	IP Address	Subnet Mask	Default Gateway
0	Host Station	0	Master Station							192.168.3.253		
1	Ezi-STEP-CT-ALL	1	Remote Station				16	16	<Detail Setting>	192.168.3.1		
2	Ezi-STEP-CT-ALL	2	Remote Station				16	16	<Detail Setting>	192.168.3.2		
3	Ezi-STEP-CT-ALL	3	Remote Station				16	16	<Detail Setting>	192.168.3.3		

2-5. Module Parameter – CC-Link IE TSN Configuration

- CC-Link IE TSN Module PDO Mapping Setting (축별 설정)

CC-Link IE TSN Configuration (Start I/O: 0C00)

CC-Link IE TSN Configuration Edit View Close with Discarding the Setting Close with Reflecting the Setting

Mode Setting: Online (Unicast Mode) Assignment Method:

No.	Model Name	STA#	Station Type	RX Setting Points	RY Setting Points	RW Setting Points	RWw Setting Points	Parameter Automatic Setting	PDO Mapping Setting	IP Address	Subnet Mask	Default Gateway
0	Host Station	0	Master Station							192.168.3.253		
1	Ei-STEP-CT-ALL	1	Remote Station			16	16		<Detail Setting>	192.168.3.17		
2	Ei-STEP-CT-ALL	2	Remote Station			16	16		<Detail Setting>	192.168.3.18		
3	Ei-STEP-CT-ALL	3	Remote Station			16	16		<Detail Setting>	192.168.3.19		

Module List

- CC-Link IE TSN Selection
- Find Module
- My
- General CC-Link IE TSN Module
- CC-Link IE TSN Module (Mitsubishi Electr
- Master/Local Module
- Motion Module
- GOT3000 Series
- GOT2000 Series
- General-Purpose AC Servo
- General-purpose Inverter
- DC Input
- Transistor Output
- I/O Combined
- Analog Input
- Analog Output

PDO Mapping Setting

Link Device Points

PDO Mapping Parameter

Link Device (RW) Points: 16

Link Device (RWw) Points: 16

Link Device (RW) Points: 16

No.	Pattern Name	Used Points
1	1st TPDO (CSP Mode)	8 Points
2	2nd TPDO (ProfilePosition Mode)	10 Points

Link Device (RWw) Points: 16

No.	Pattern Name	Used Points
1	1st RPDO (CSP Mode)	7 Points
2	2nd RPDO (ProfilePosition Mode)	13 Points

Back Next Cancel

Back OK Cancel

Back OK Cancel

Network Label

Output

Error:0 Warning:0 Information:0

[Outline]
Step Drive
[Specification]
Closed-Loop Step Drive
Motor: Max. NEMA 24
Mode: Homing, CSP, FP
CC-Link IE TSN Class B
[Manufacturer Name]
FASTECH Co. Ltd
[Station Type]
Remote Station

2-5. Module Parameter – CC-Link IE TSN Configuration

- CC-Link IE TSN Module PDO Mapping Setting (축별 설정)

등록에 따라 생성됨

PDO Mapping Setting

Link Device	Index [Hexadecimal]	Sub-Index [Hexadecimal]	Entry Name	Comment	Data Type
RW0000	1002	01	Watchdog counter UL 1		UNSIGNED16
RW0001	6041	00	Statusword		UNSIGNED16
RW0002	6061	00	Modes of operation display		INTEGER8
RW0003	603F	00	Error code		UNSIGNED16
RW0004	6064	00	Position actual value		INTEGER32
RW0005	6064	00	Position actual value		INTEGER32
RW0006	6072	00	Digital Inputs		UNSIGNED32
RW0007	6072	00	Digital Inputs		UNSIGNED32
RW0008					
RW0009					
RW000a					
RW000b					
RW000c					
RW000d					
RW000e					
RW000f					

PDO Mapping Pattern Selection...

OK Cancel

PDO 설정 완료되면 검정색으로 변경됨
<Detail Setting> → <Detail Setting>
반복으로 모든 축 PDO 설정

2-5. Module Parameter – CC-Link IE TSN Configuration

● CC-Link IE TSN Module Setting 반영

The screenshot displays the 'CC-Link IE TSN Configuration' window. At the top, the menu bar includes 'Close with Discarding the Setting' and 'Close with Reflecting the Setting', both of which are circled in red. A yellow arrow points from the 'Close with Reflecting the Setting' menu item to a warning dialog box. The dialog box, titled 'MELSOFT GX Works3', contains a warning icon and the text: 'Warning(s) in the CC-Link IE TSN Configuration. Are you sure you want to close the CC-Link IE TSN Configuration window?'. The '예(Y)' button is circled in red. The background shows a table of module settings and a 'Module List' on the right side.

No.	Model Name	Station Type	RX Setting Points	RY Setting Points	RWr Setting Points	RWw Setting Points	Parameter Automatic Setting	PDO Mapping Setting	IP Address	Subnet Mask	Default Gateway
0	Host Station	Master Station							192.168.3.253		
1	Ez-STEP-CT-ALL	Remote Station				16		<Detail Setting>	192.168.3.17		
2	Ez-STEP-CT-ALL	Remote Station				16		<Detail Setting>	192.168.3.18		
3	Ez-STEP-CT-ALL	Remote Station				16		<Detail Setting>	192.168.3.19		

등록에 따라 생성됨

Module List

- CC-Link IE TSN Selection
- Find Module
- My
- General CC-Link IE TSN Module
- CC-Link IE TSN Module (Mitsubishi Electr
- Master/Local Module
- Motion Module
- GOT3000 Series
- GOT2000 Series
- General-Purpose AC Servo
- General purpose Inverter
- DC Input
- Transistor Output
- I/O Combined
- Analog Input
- Analog Output
- Network Interface Board
- EnergyMeasuringUnit
- Bridge module
- FPGA module
- CC-Link IE TSN Module (FASTECH Co. L
- BLDC Servo Drive
- Closed-loop Step Drive
- Open-loop Step Drive
- Ezi-STEP-CT
- Ezi-STEP-CT-4X
- Ezi-STEP-CT-ALL
- Speed Control

Outline

Step Drive, All-in-One

Specification

Open-Loop Step Drive

Motor: Max. NEMA 24

Mode: Homing, CSP, FP

CC-Link IE TSN Class B

All in One

Manufacturer Name]

FASTECH Co. Ltd

Station Type]

Network Label

Output

Error:0 Warning:0 Information:0

2-5. Module Parameter – CC-Link IE TSN Configuration

● 축 생성

Assign Axis

Automatically create the axis for the station whose axis is unassigned.
Change the station address setting of the set axis to the IP address value when setting an existing axis name.
The axis will not be assigned if it is blank.

STA#	Model Name	IP Address	Alias	Axis Type	Assignment	Destin...
1	Ezi-STEP-CT-ALL	192.168.3.17		Real Drive Axis	Axis0001	
2	Ezi-STEP-CT-ALL	192.168.3.18		Real Drive Axis	Axis0002	
3	Ezi-STEP-CT-ALL	192.168.3.19		Real Drive Axis	Axis0003	

축 이름 변경 가능 (예)
- Axis0001 → RoboX
- Axis0002 → RoboY
- Axis0003 → RoboZ

2

1

Apply

2-5. Module Parameter – CC-Link IE TSN Configuration

● 축 생성 확인

The screenshot shows the MELSOFT GX Works3 interface for configuring the MXR300-16 module parameters. The navigation tree on the left is expanded to show the 'Axis' folder, which is highlighted with a red box and a yellow callout box labeled '1'. The 'Setting Item List' in the center shows the 'Network Configuration Settings (CC-Link IE TSN Configuration)' folder selected. The 'Setting Item' table on the right displays various settings, including 'Network Configuration Settings', 'Refresh Settings', 'Network Topology', and 'Communication Period Setting'. A dialog box is open, displaying a message about configuration changes and a '확인' (OK) button, which is highlighted with a red circle and a yellow callout box labeled '2'. The dialog box text reads: 'Network Configuration Settings has been changed. Please check the settings of editing window according to the changes for the following. Setting Item: [Signal] - [Target] - Motion System Setting - Axis. * Please set the object data of Axis Parameter Setting when the module other than MELSERVO has been used.' The '확인' button is circled in red.

축 생성 확인 :
Motion Setting/Axis

2-5. Module Parameter – CC-Link IE TSN Configuration

● Network Label Setting – 축별 Digital In/Output 설정

The screenshot displays the 'Network Label Setting' window in MELSOFT GX Works3. The window is divided into a left-hand navigation pane and a main data table. The navigation pane shows a tree view of the project structure, with 'Network Label Setting' selected under the 'Parameter' section.

The main data table lists three device stations (1, 2, and 3) with their respective IP addresses and model names. For each station, a list of digital I/O points is shown, including their data types and label names. Red circles highlight the 'Labeling Target' column for digital outputs (RWw0-RWw6) and digital inputs (RWr0-RWr6). A red circle with the number '1' is placed over the first station's digital output labels.

Two yellow callout boxes on the right side of the window provide additional information:

- Digital Output 라벨 설정** (Digital Output Label Setting)
- Digital Input 라벨 설정 - Limit +/-, ORG, Input** (Digital Input Label Setting - Limit +/-, ORG, Input)

A dialog box titled 'MELSOFT GX Works3' is overlaid on the bottom right, containing a warning icon and the text: 'Start creating the label on the basis of the following content. Are you sure you want to continue?'. The dialog box has two buttons: '예(Y)' (Yes) and '아니요(N)' (No). A red circle with the number '3' is placed over the '예(Y)' button. A red circle with the number '2' is placed over the 'Create Label' button at the bottom of the main window.

At the bottom of the window, there are buttons for 'Structure Array Setting...', 'Update Network Configuration Info', and 'Create Label'.

2-5. Module Parameter – CC-Link IE TSN Configuration

- Network Label Setting – **축별 Digital In/Output Enable** *Limit SW, ORG SW, DIO 사용 가능 설정

The screenshot shows the MELSOFT GX Works3 interface with the 'Network Label Setting' window open. The window displays a table of labels with columns for Label Name, Data Type, and English/Display Target. A red circle highlights the 'Access from External Device' column, which contains checkmarks for all listed labels. A yellow callout box points to this column with the text: 'Ezi-STEP CC-Link IE TSN ALL DIO 사용 Check (Limit SW, ORG, DIO Enable)'. The left sidebar shows the project structure, and the bottom status bar indicates 'Extended Display: Do Not Show Always'.

Label Name	Data Type	English/Display Target	Access from External Device
1 Ezi_STEP_CT_001_PhysicalOutput	Double Word (Unsigned) Bit String (32bit)	RWw5	<input checked="" type="checkbox"/>
2 Ezi_STEP_CT_001_DigitalInputs	Double Word (Unsigned) Bit String (32bit)	RWw5	<input checked="" type="checkbox"/>
3 Ezi_STEP_CT_002_PhysicalOutput	Double Word (Unsigned) Bit String (32bit)	RWw5	<input checked="" type="checkbox"/>
4 Ezi_STEP_CT_002_DigitalInputs	Double Word (Unsigned) Bit String (32bit)	RWw5	<input checked="" type="checkbox"/>
5 Ezi_STEP_CT_003_PhysicalOutput	Double Word (Unsigned) Bit String (32bit)	RWw5	<input checked="" type="checkbox"/>
6 Ezi_STEP_CT_003_DigitalInputs	Double Word (Unsigned) Bit String (32bit)	RWw5	<input checked="" type="checkbox"/>
7			

2-5. Module Parameter – Port 3 : Ethernet

● Ethernet IP Address Setting

The screenshot displays the MELSOFT GX Works3 interface for configuring the MXR300-16 module parameters. The left sidebar shows the project tree with 'Module Parameter (Port 3: Ethernet)' selected. The main window is divided into several panes:

- Setting Item List:** Shows a tree view of settings, with 'IP Address Setting' selected. A red circle with the number '1' highlights this selection.
- Setting Item:** A table with columns 'Item' and 'Setting'. The 'IP Address' row is highlighted with a red circle and contains the value '192.168.3.251'. A yellow callout box points to this value with the text 'Ethernet IP Address 임의 설정 (예 : 192.168.3.251)'. The 'Subnet Mask' row is also highlighted with a red circle.
- Explanation:** A text area at the bottom of the 'Setting Item' pane providing details about the subnet mask setting.
- Buttons:** 'Check' and 'Restore the Default' buttons are visible at the bottom of the 'Setting Item' pane. The 'Apply' button at the bottom right of the main window is highlighted with a red circle and the number '2'.

Item	Setting
IP Address Setting Method	Parameter Editor
IP Address Setting	
IP Address	192.168.3.251
Subnet Mask	
Default Gateway	

Explanation
Set to determine how many bits of the IP address are used as the network address, which is used to identify the network. Masked bit has been specified from top between the top bit and bit 2.
For example, set '255.255.255.0' to assign the upper 24 bits of IP address to the subnet mask.
[Setting range]
- Empty
- 0.0.0.1 to 255.255.255.255 (in decimal)

2-6. Motion Setting – Basic Parameter

- Real Drive Axis / Basic Parameter / Object Data 설정(1/3)

- *Ezi-STEP CC-Link IE TSN ALL Object Data 등록

1 Select 'Axis' in the navigation tree.

2 Expand 'Basic Parameter' in the 'Setting Item List'.

3 Select 'ControlWord' in the 'Object Data' section.

4 Click 'Restore the Default' in the 'Object Data Setting' dialog.

5 Confirm 'Set default data' in the warning dialog.

6 Confirm 'Yes' in the final warning dialog.

Ezi-STEP CC-Link IE TSN ALL Object Data

Item	Axis0001	Axis0002	Axis0003
Axis No.	1	2	3
Set Basic Parameter			
Station Address Setting	192.168.3.17	192.168.3.18	192.168.3.19
Axis Type Setting	0:Real Drive Axis	0:Real Drive Axis	0:Real Drive Axis
Axis Emulation Enabled	0:Disabled	0:Disabled	0:Disabled
Control Cycle Setting	0:Automatic setting	0:Automatic settir	0:Automatic settir
Object Data			
ControlWord	[OBJ]0x60400010	[OBJ]0x60400011	[OBJ]0x60400012
EncoderIncrements	[OBJ]0x608F0120	[OBJ]0x608F0121	[OBJ]0x608F0122
FollowingErrorActualValue	[OBJ]0x60F40020	[OBJ]0x60F40021	[OBJ]0x60F40022
Object Data Setting (Axis0001)			
Target Device:	Ezi-SERVO-CT		
Changing the object data is not required when MELSERVO has been used. Please set it to the generic default value by pressing Restore the Default Settings button when the non-MELSERVO device has been used. It can be changed individually when the device inherent object data has been set.			
ControlWord	[OBJ]0x60400010	Controlword	
EncoderIncrements	[OBJ]0x608F0120	Encoder increments	
FollowingErrorActualValue	[OBJ]0x60F40020	Following error actual value	
GearRatioMotorRevolutions	[OBJ]0x60910120	Motor revolutions	
HomeOffset	[OBJ]0x607C0020	Home offset	
MaxMotorSpeed	[OBJ]0x60900020	Max motor speed	
MaxTorque	[OBJ]0x60720010	Max torque	
ModesOfOp	[OBJ]0x60600008	Modes of operation	
ModesOfOpDispl	[OBJ]0x60610008	Modes of operation displ	
NeogativeTorqueLimitValue	[OBJ]0x60E10010		
ShaftRevol	[OBJ]0x607E0008		
SIUnitPos	[OBJ]0x60640020		
SIUnitVel			
StatusWord	[OBJ]0x60410010		
SupportedDriveModes	[OBJ]0x65020020		
TargetPos	[OBJ]0x607A0020		

2-6. Motion Setting – Basic Parameter

- Real Drive Axis / Basic Parameter / Object Data 설정(2/3)

*Ezi-STEP CC-Link IE TSN ALL Object Data 등록

The screenshot shows the 'Axis Parameter Setting' window for Axis0002. The 'Object Data' section is expanded, and the 'Object Data Setting' dialog box is open. The dialog shows a table of object data with values like [OBJ]0x6040010 and [OBJ]0x6040020. A yellow callout box with the number 7 points to the 'ControlWord' field, and another yellow callout box with the number 8 points to the 'OK' button. A yellow callout box at the bottom left says '[OBJ] 변경된 내용 확인'.

Item	Axis0001	Axis0002	Axis0003
Axis Information	Set Axis Information		
Axis No.	1	2	3
Basic Parameter	Set Basic Parameter		
Station Address Setting	192.168.3.17	192.168.3.18	192.168.3.19
Axis Emulation Enabled	0:Real Drive Axis	0:Real Drive Axis	0:Real Drive Axis
Axis Emulation Enabled	0:Disabled	0:Disabled	0:Disabled
Control Cycle Setting	0:Automatic settir	0:Automatic settir	0:Automatic settir
Object Data	ControlWord		
EncoderIncrements	[OBJ]0x6040010	[OBJ]0x6040010	[OBJ]0x6040010
EncoderIncrements	[OBJ]0x608F012C	[OBJ]0x608F012C	[OBJ]0x608F012C
ControlWord	[OBJ]0x6040010	[OBJ]0x60800020	[OBJ]0x60A90020
EncoderIncrements	[OBJ]0x608F0120	[OBJ]0x60720010	[OBJ]0x60720010
FollowingErrActualValue	[OBJ]0x60F40020	[OBJ]0x60600008	[OBJ]0x60600008
GearRatioMotorRevolutions	[OBJ]0x6067C0020	[OBJ]0x60610008	[OBJ]0x60610008
HomeOffset	[OBJ]0x60E10010	[OBJ]0x607E0008	[OBJ]0x607E0008
MaxMotorSpeed	[OBJ]0x60600020	[OBJ]0x60640001	[OBJ]0x60640001
MaxTorque	[OBJ]0x60720010	[OBJ]0x6052002C	[OBJ]0x6052002C
ModesOfOp	[OBJ]0x60600008	[OBJ]0x6052002C	[OBJ]0x6052002C
ModesOfOpDispl	[OBJ]0x60610008	[OBJ]0x6052002C	[OBJ]0x6052002C
ModesOfOpDispl	[OBJ]0x60E10010	[OBJ]0x607E0008	[OBJ]0x607E0008
NegativeTorqueLimitValue	[OBJ]0x607E0008	[OBJ]0x60640001	[OBJ]0x60640001
Polarity	[OBJ]0x607E0008	[OBJ]0x60640001	[OBJ]0x60640001
PosActualValue	[OBJ]0x60640001	[OBJ]0x60A90020	[OBJ]0x60A90020
SIUnitVel	[OBJ]0x60A90020	[OBJ]0x60A90020	[OBJ]0x60A90020
StatusWord	[OBJ]0x60410011	[OBJ]0x60410011	[OBJ]0x60410011
SupportedDriveModes	[OBJ]0x6502002C	[OBJ]0x6502002C	[OBJ]0x6502002C

2-6. Motion Setting – Basic Parameter

- Real Drive Axis / Basic Parameter / Object Data 설정(3/3)

*Ezi-STEP CC-Link IE TSN ALL Object Data 등록

The screenshot displays the 'Axis Parameter Setting' interface for 'Axis0001'. The 'Object Data' section is expanded, showing a list of parameters for three axes (Axis0001, Axis0002, Axis0003). A red circle highlights the 'Ezi-STEP CC-Link IE TSN ALL' parameter, which is currently set to '[OBJ]'. A yellow callout box with the text 'Ezi-STEP CC-Link IE TSN ALL 모든 축 [OBJ] 변경된 내용 확인' points to this parameter. The 'Apply' button at the bottom right is also circled in red.

Item	Axis0001	Axis0002	Axis0003
Axis Information	Set Axis Information		
Axis No.	1	2	3
Basic Parameter	Set Basic Parameter		
Station Address Setting	192.168.3.17	192.168.3.18	192.168.3.19
Axis Type Setting	0:Real Drive Axis	0:Real Drive Axis	0:Real Drive Axis
Axis Emulation Enabled	0:Disabled	0:Disabled	0:Disabled
Control Cycle Setting	0:Automatic setting	0:Automatic setting	0:Automatic setting
Object Data	Ezi-STEP CC-Link IE TSN ALL		
ControlWord	[OBJ]0x6040001	[OBJ]0x6040001	[OBJ]0x6040001
EncoderIncrements	[OBJ]0x608F012	[OBJ]0x608F012	[OBJ]0x608F012
FollowingErrActualValue	[OBJ]0x60F4002	[OBJ]0x60F4002	[OBJ]0x60F4002
GearRatioMotorRevolutions	[OBJ]0x607C002	[OBJ]0x607C002	[OBJ]0x607C002
HomeOffset	[OBJ]0x6080002	[OBJ]0x6080002	[OBJ]0x6080002
MaxMotorSpeed	[OBJ]0x6072001	[OBJ]0x6072001	[OBJ]0x6072001
MaxTorque	[OBJ]0x6060001	[OBJ]0x6060001	[OBJ]0x6060001
ModesOfOp	[OBJ]0x6061000	[OBJ]0x6061000	[OBJ]0x6061000
ModesOfOpDisp	[OBJ]0x60E1001	[OBJ]0x60E1001	[OBJ]0x60E1001
NegativeTorqueLimitValue	[OBJ]0x607E000	[OBJ]0x607E000	[OBJ]0x607E000
Polarity	[OBJ]0x6064002	[OBJ]0x6064002	[OBJ]0x6064002
PosActualValue	[OBJ]0x608F000	[OBJ]0x608F000	[OBJ]0x608F000
PosEncoderResolution	[OBJ]0x608F022	[OBJ]0x608F022	[OBJ]0x608F022
PosEncoderResolutionMotorRevolutions	[OBJ]0x60E0001	[OBJ]0x60E0001	[OBJ]0x60E0001
PosEncoderResolutionMotorRevolutions	[OBJ]0x60A8002	[OBJ]0x60A8002	[OBJ]0x60A8002
PosEncoderResolutionMotorRevolutions	[OBJ]0x60A9002	[OBJ]0x60A9002	[OBJ]0x60A9002
PosEncoderResolutionMotorRevolutions	[OBJ]0x6041001	[OBJ]0x6041001	[OBJ]0x6041001
PosEncoderResolutionMotorRevolutions	[OBJ]0x6502002	[OBJ]0x6502002	[OBJ]0x6502002

2-6. Motion Setting – Basic Parameter

- Real Drive Axis / Basic Parameter / Absolute Position Control Setting - Disable 선택

The screenshot shows the MELSOFT GX Works3 interface with the 'Axis Parameter Setting' window open. The 'Absolute Position Control Setting' section is selected, and the 'Disable Absolute Position System' option is chosen from the dropdown menu. A red circle highlights this selection. A yellow callout box contains the text: 'Ezi-STEP CC-Link IE TSN ALL은 Disable Absolute Position System으로 선택'. The 'Apply' button at the bottom right is also circled in red.

Item	Axis0001	Axis0002	Axis0003
Set Axis Information			
Axis No.	1	2	3
Set Basic Parameter			
Station Address Setting	192.168.3.17	192.168.3.18	192.168.3.19
Axis Type Setting	0:Real Drive Axis	0:Real Drive Axis	0:Real Drive Axis
Axis Emulation Enabled	0:Disabled	0:Disabled	0:Disabled
Control Cycle Setting	0:Automatic Setting	0:Automatic Setting	0:Automatic Setting
Absolute Position Control Setting			
Current Position Restore Reference Position	0:Disable Absc	-1:Automatic Set	-1:Automatic Set
Ring Counter Enabled Selection	0:Disable Absolute Position System		
Ring Counter Upper Limit Value	1:Enable Absolute Position System		
Ring Counter Lower Limit Value	-1:Automatic Setting (Acquire from Connected Device)		
Position Command Unit	-1000000.0000000 pulse	-1000000.0000000 pulse	-1000000.0000000 pulse
Velocity Command Unit	U/s	U/s	U/s
Velocity Bias Value	0.0 pulse/s	0.0 pulse/s	0.0 pulse/s
Driver Unit Conversion Numerator	1 pulse	1 pulse	1 pulse
Driver Unit Conversion Denominator	1 pulse	1 pulse	1 pulse
Set Limit Parameter			
Torque Limit Maximum Value	1000.0 %	1000.0 %	1000.0 %
Negative Direction Torque Limit Initial Value	300.0 %	300.0 %	300.0 %
Initial Value	300.0 %	300.0 %	300.0 %
Explanation			
<Axis Parameter Constant> Axis_PrConst_PosRestoration_AbsPosEnable Set the absolute position control setting.			
[Setting Range] 0:Disable Absolute Position System 1:Enable Absolute Position System -1:Automatic Setting (Acquire from Connected Device)			

2-6. Motion Setting – Basic Parameter

- Real Drive Axis / Basic Parameter / Position Command Unit 설정 (Ezi-STEP ALL 10,000ppr)

Ezi-STEP CC-Link IE TSN ALL의 Encoder Resolution Setting Range는 10,000 pulse/rev

기어비 설정 방법은 기존방법과 동일함

1 Select Folder: Display All Data

Item	Axis0001	Axis0002	Axis0003
Axis Information			
Set Axis Information			
Axis No.	1	2	3
Basic Parameter			
Set Basic Parameter			
Station Address Setting	192.168.3.17	192.168.3.18	192.168.3.19
Axis Type Setting	0:Real Drive Axis	0:Real Drive Axis	0:Real Drive Axis
Axis Emulation Enabled	0:Disabled	0:Disabled	0:Disabled
Control Cycle Setting	0:Automatic settir	0:Automatic settir	0:Automatic settir
Object Data			
Absolute Position Control Setting	0:Disable	0:Disable	0:Disable
Current Position Restore Reference Position	0:Automatic judg	-1:Automatic judg	-1:Automatic judg
Ring Counter Enabled Selection	0:Disabled	0:Disabled	0:Disabled
Ring Counter Upper Limit Value	10000000000.0 pi	10000000000.0 pi	10000000000.0 pi
Ring Counter Lower Limit Value	-10000000000.0 pi	-10000000000.0 pi	-10000000000.0 pi
Position Command Unit			
Position Command Unit	pulse	pulse	pulse

2 Encoder Resolution: 10000 [pulse/rev]

3 Calculate Axis Para

4 Click OK to reflect to the axis parameters.

5 Are you sure? 예(Y) / 아니요(N)

Reflects the calculation result to the axis parameters.
Values currently set will be deleted and updated to the values of calculation result.
Are you sure?

2-6. Motion Setting – Basic Parameter

- Real Drive Axis / Basic Parameter / Position Command Unit 설정 (Ezi-STEP ALL 10,000ppr)

Robot or Stage 이동 단위 선택

Ezi-STEP CC-Link IE TSN ALL Encoder 10,000 pulse/rev

모터 1회전당 이동 거리/각도 설정

Item	Axis0001	Axis0002	Axis0003
Axis Information			
Set Axis Information			
Axis No.	1	2	3
Basic Parameter			
Set Basic Parameter			
Station Address Setting	192.168.3.17	192.168.3.18	192.168.3.19
Axis Type Setting	0:Real Drive Axis	0:Real Drive Axis	0:Real Drive Axis
Axis Emulation Enabled	0:Disabled	0:Disabled	0:Disabled
Control Cycle Setting	0:Automatic settir	0:Automatic settir	0:Automatic settir
Object Data			
Absolute Position Control Setting	0:Disable Absolut	0:Disable Absolut	0:Disable Absolut
Current Position Restore Reference Position	-1:Automatic judg	-1:Automatic judg	-1:Automatic judg
Ring Counter Enabled Selection	0:Disabled	0:Disabled	0:Disabled
Ring Counter Upper Limit Value	10000000000.0	10000000000.0	10000000000.0
Ring Counter Lower Limit Value	10000000000.0	10000000000.0	10000000000.0
Position Command Unit			
Position Command Unit String	degree	mm	mm
Limit Parameter			
Set Limit Parameter			
Torque Limit Maximum Value	1000.0 %	1000.0 %	1000.0 %
Negative Direction Torque Limit Initial Value	300.0 %	300.0 %	300.0 %
Positive Direction Torque Limit Initial Value	300.0 %	300.0 %	300.0 %
Upper Limit Signal			
Signal			
Target			
Signal Detection Method	0:Detection at TRL	0:Detection at TRL	0:Detection at TRL
Compensation Time	0.0 s	0.0 s	0.0 s

Apply

2-6. Motion Setting – Basic Parameter

● Real Drive Axis / Basic Parameter / Limit Parameter

Ezi-STEP CC-Link IE TSN ALL +Limit Switch 설정은 Ezi_STEP_CT_001_DigitalInputs.1

Ezi-STEP CC-Link IE TSN ALL -Limit Switch 설정은 Ezi_STEP_CT_001_DigitalInputs.0

주) Ezi_STEP_CT_xxx_DigitalInputs.x 라벨 설정이 안될 경우
 1. PDO Mapping Setting 확인 (16~17page)
 2. Network Label Setting 확인 (21~22page)

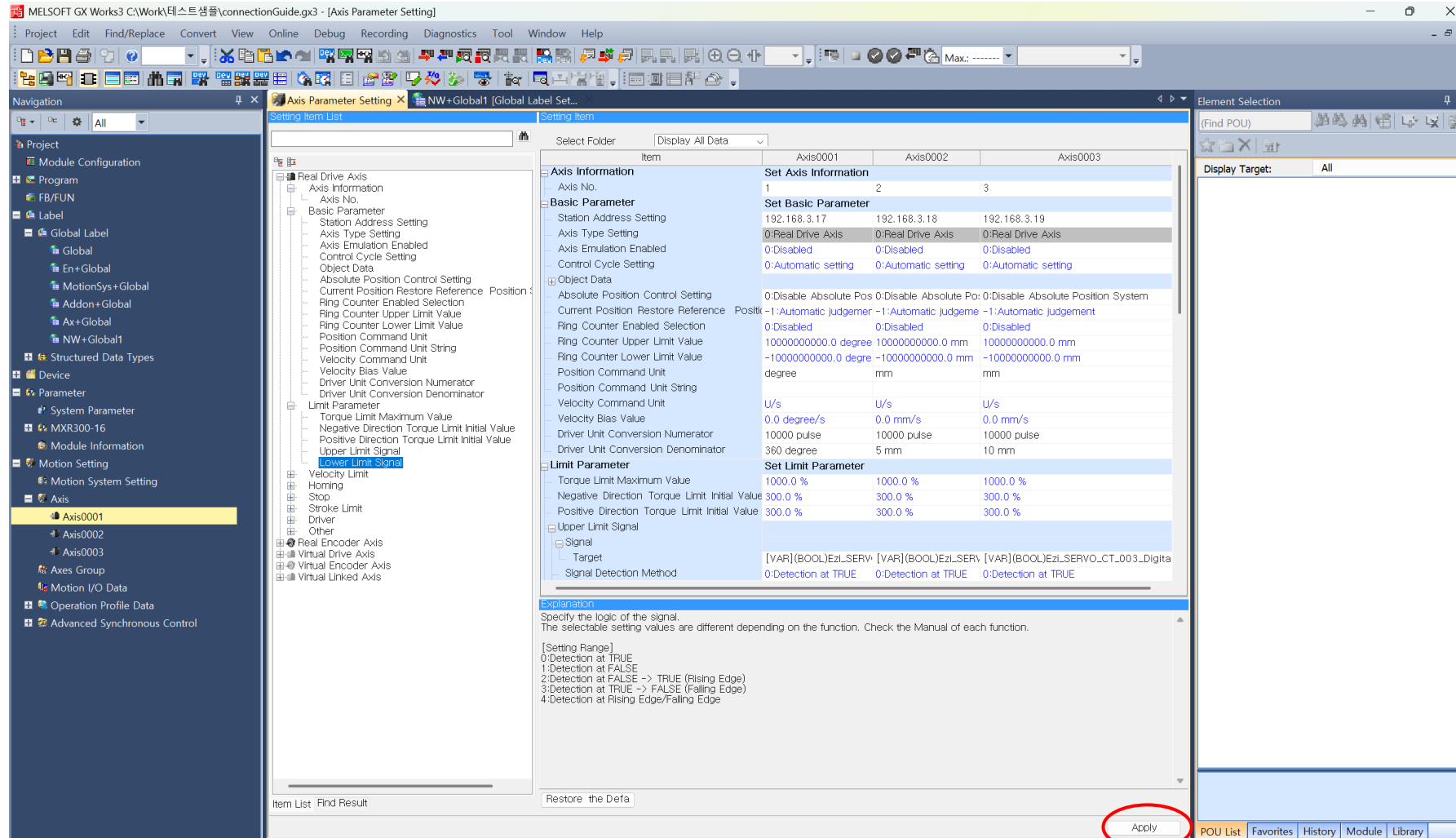
Item	Axis0001	Axis0002	Axis0003
Ring Counter Enabled Selection	0:Disabled	0:Disabled	0:Dis...
Ring Counter Upper Limit Value	10000000000.0 degree	10000000000.0 m	10000...
Ring Counter Lower Limit Value	-10000000000.0 degree	-10000000000.0 m	-10000...
Position Command Unit	degree	mm	mm
Position Command Unit String			
Velocity Command Unit	U/s	U/s	U/s
Velocity Bias Value	0.0 degree/s	0.0 mm/s	0.0 m...
Driver Unit Conversion Numerator	10000 pulse	10000 pulse	10000...
Driver Unit Conversion Denominator	360 degree	5 mm	10 m...
Limit Parameter			
Set Limit Parameter			
Torque Limit Maximum Value	1000.0 %	1000.0 %	1000.0 %
Negative Direction Torque Limit Initial Value	300.0 %	300.0 %	300.0 %
Positive Direction Torque Limit Initial Value	300.0 %	300.0 %	300.0 %
Upper Limit Signal			
Signal			
Target	[VAR](BOOL)Ezi_STEP_CT_001_DigitalInputs.1		
Signal Detection Method	0:Detection at TRUE	0:Detecti...	0:Detecti...
Compensation Time	0.0 s	0.0 s	0.0 s
Filter Time	0.0 s	0.0 s	0.0 s
Lower Limit Signal			
Signal			
Target	[VAR](BOOL)Ezi_STEP_CT_001_DigitalInputs.0		
Signal Detection Method	0:Detection at TRUE	0:Detecti...	0:Detecti...
Compensation Time	0.0 s	0.0 s	0.0 s
Filter Time	0.0 s	0.0 s	0.0 s
Velocity Limit			
Set Velocity Limit			
Positive Direction Velocity Limit Value	2500000000.0 degree/s	2500000000.0 mm	25000...

Explanation
 Specify the logic of the signal.
 The selectable setting values are different depending on the function. Check the Manual of each function.

[Setting Range]
 0:Detection at TRUE
 1:Detection at FALSE
 2:Detection at FALSE -> TRUE (Rising Edge)
 3:Detection at TRUE -> FALSE (Falling Edge)
 4:Detection at Rising Edge/Falling Edge

2-6. Motion Setting – Parameter 등록

● Parameter 등록으로 Motion Setting 완료



2-7. Convert

- Parameter 설정 등에 대하여 “Create Execution Programs after Conversion” 하기

The screenshot shows the MELSOFT GX Works3 interface with the 'Convert' menu open. The 'Rebuild All' option is highlighted with a red box and a red circle labeled '1'. The 'Rebuild All' dialog box is open, showing the 'Create Execution Programs' section. The 'Create Execution Programs after Conversion' option is selected with a red circle labeled '2'. A yellow callout box with the text 'MX Controller는 반드시 Create Execution Programs after Conversion' points to this option. The 'OK' button in the dialog is also circled in red with a red circle labeled '3'. The background shows the 'Setting Item' table for Axis0001, Axis0002, and Axis0003.

Item	Axis0001	Axis0002	Axis0003
Axis Information	Set Axis Information		
Axis No.	1	2	3
Basic Parameter	Set Basic Parameter		
Station Address Setting	192.168.3.17	192.168.3.18	192.168.3.19
Axis Type Setting	0:Real Drive Axis	0:Real Drive Axis	0:Real Drive Axis
Axis Emulation Enabled	0:Disabled	0:Disabled	0:Disabled
Axis Emulation Setting	0:Disabled	0:Disabled	0:Disabled
Absolute Position Control Setting	0:Disable	0:Disable	0:Disable
Absolute Position Restore Reference	0:Automatic judgement	0:Automatic judgement	0:Automatic judgement
Ring Counter Enabled Selection	0:Automatic judgement	0:Automatic judgement	0:Automatic judgement
Ring Counter Upper Limit Value			
Ring Counter Lower Limit Value			
Position Command Unit			
Position Command Unit String			
Velocity Command Unit			
Velocity Bias Value			
Driver Unit Conversion Numerator			
Driver Unit Conversion Denominator			
Limit Parameter	Set Limit Parameter		
Torque Limit Maximum Value			
Negative Direction Torque Limit Initial			
Positive Direction Torque Limit Initial			
Upper Limit Signal			
Lower Limit Signal			
Velocity Limit			
Homming			
Stop			
Stroke Limit			
Driver			
Other			
Real Encoder Axis			
Virtual Drive Axis			
Virtual Encoder Axis			
Virtual Linked Axis			

2-8. Write to PLC

- Online Data Operation

The screenshot shows the MELSOFT GX Works3 interface. The 'Online' menu is open, and the 'Write to PLC...' option is highlighted with a red circle and a yellow arrow pointing to the 'Online Data Operation' dialog box. The dialog box has tabs for 'Display', 'Setting', and 'Related Functions'. The 'Display' tab is active, showing a table of memory areas and their capacities.

Module Name/Data Name	Detail	Title	Last Change	Size (Byte)
MAIN			2026-02-02 ...	Not Calculated
Device Memory				
MAIN	Detail		2026-02-02 ...	-
File Register				
MAIN	Detail		2026-02-02 ...	Not Calculated
Common Device Co...				
COMMENT	Detail		2026-02-02 ...	Not Calculated

Below the table, there is a 'Memory Capacity' section with a size calculation bar and a legend. The legend includes: Used (green), Increased (blue), Decreased (red), and Free: 5% or Less (pink). The 'Execute' button in the dialog box is also circled in red.

3. Program 따라 하기

3-1. Motion 제어 명령어 살펴보기

● Motion Control Function/Function Block 명령어 – Element Selection (좌측 메뉴)

The screenshot shows the MELSOFT GX Works3 interface. The main window displays a ladder logic diagram with a callout box for 'MC_Power 1 (MC_Power)'. The callout box lists the following parameters:

DUT: Axis	Axis :DUT
B: Enable	Status :B
B: ServoON	ReadyStat. :B
	Busy :B
	Error :B
	ErrorID :UW

The 'Element Selection' panel on the right shows a list of Motion Control Function/Function Blocks. A red box highlights the 'Motion Control Function/Function Block' section, and a red arrow points to the 'MC_Power' block. The text '마우스 클릭 & 드래그' (Mouse click & drag) is written in the diagram area.

Motion Control Function/Function Block

MC_AbortTrigger	Touch Probe Disabled
MC_CamTableSelect	Cam Table Selection
MC_DigitalCamSwitch	Outputs the digital ca
MC_GroupDisable	Axes Group Disabled
MC_GroupEnable	Axes Group Enabled
MC_GroupReset	Axes Group Error Resi
MC_GroupSetOverri	Axes Group Override
MC_Power	Operation Available
MC_ReadParameter	Parameter Read
MC_Reset	Axis Error Reset
MC_SetOverride	Override Value Setting
MC_SetPosition	Current Position Chan
MC_TouchProbe	Touch Probe Enabled
MC_WriteParameter	Parameter Write
MCv_AdvCamSetPos	Advanced Synchrono
MCv_AdvPositionPe	Advanced Synchrono
MCv_AllPower	All Axes Operation Av
MCv_ChangeCycle	Current Value Change
MCv_MotionErrorRe	Motion Error Reset
MCv_SetTorqueLimi	Torque Limit Value
MCv_SyncOperation	Control Operation Cyc

Motion - Individual

General FB

MC_AbortTrigger

[Version]
00A

POU List Favorites History Module Library

3-2. [Ladder] STEP Enable, STEP ON

- Ezi-STEP CC-Link IE TSN ALL Enable/STEP ON Program

MELSOFT GX Works3 C:\Work\테스트샘플\connectionGuide.gx3 - [ProgPou [PRG] [LD] (Read Only) 10Byte]

Project Edit Find/Replace Convert View Online Debug Recording Diagnostics Tool Window Help

Navigation ProgPou [PRG] [LD] (Read Only... ProgPou [PRG] [Local Label Set...

1 (0) 2 3 4 5 6 7 8 (9)

MC Power 1 (MC_Power)

DUT: Axis Axis :DUT

B: Enable Status :B

B: ServoON ReadyStat. :B

Busy :B

Error :B

ErrorID :UW

END

STEP ON/OFF FB은 2종

- 개별 On/Off : MC_Power
- 일괄 On/Off : MCv_AllPower

Element Selection

(Find POU)

Display Target: All

Selection

String

Bit Shift

Edge Detection

Counter

Timer

Bistable

Motion Control Function/Function Block

Administrative

- MC_AbortTrigger Touch Probe Disabled
- MC_CamTableSelect Cam Table Selection
- MC_DigitalCamSwitc Outputs the digital ca
- MC_GroupDisable Axes Group Disabled
- MC_GroupEnable Axes Group Enabled
- MC_GroupReset Axes Group Error Resi
- MC_GroupSetOverri Axes Group Override
- MC_Power Operation Available
- MC_ReadParameter Parameter Read
- MC_Reset Axis Error Reset
- MC_SetOverride Override Value Setting
- MC_SetPosition Current Position Chan
- MC_TouchProbe Touch Probe Enabled
- MC_WriteParameter Parameter Write
- MCv_AdvCamSetPos Advanced Synchron
- MCv_AdvPositionPe Advanced Synchron
- MCv_AllPower All Axes Operation Av
- MCv_ChangeCycle Current Value Change
- MCv_MotionErrorRe Motion Error Reset
- MCv_SetTorqueLimi Torque Limit Value
- MCv_SyncOperation Control Operation Cyc

Motion - Individual

General FB

MC_AbortTrigger

[Version]

00A

POU List Favorites History Module Library

3-3. [Ladder] Ezi-STEP 원점복귀 방법 지정

- 원점복귀 방법 지정하기 (MC_WriteParameter, 33: Homing index pu)

원점복귀 방법은 Homing method(6098h)에 설정한 값에 따라 다음과 같이 분류됩니다.

설정값	내용
1	Homing on negative limit switch and index pulse
2	Homing on positive limit switch and index pulse
7	Homing on home switch (positive direction, negative edge) and index pulse
10	Homing on home switch (positive direction, positive edge) and index pulse
11	Homing on home switch (negative direction, positive edge) and index pulse
14	Homing on home switch (negative direction, negative edge) and index pulse
17	Homing on negative limit switch
18	Homing on positive limit switch
24	Homing on home switch (positive direction, negative edge)
25	Homing on home switch (positive direction, positive edge)
28	Homing on home switch (negative direction, positive edge)
29	Homing on home switch (negative direction, negative edge)
33	Homing index pulse (negative direction)
34	Homing index pulse (positive direction)
35	Set the current position origin
37	Set the current position origin and reset current position
-3	Homing on negative mechanical limit
-4	Homing on positive mechanical limit
-5	Homing on negative mechanical limit and index pulse
-6	Homing on positive mechanical limit and index pulse

FB : MC_WriteParameter

- 원점복귀 파라미터 주소 : H60980008
- 원점복귀 방법 : 35 (Set the current position origin)

MC_WriteParameter_1 (MC...)

MC_WriteParameter

Motion Control Function/Function Block	
Administrative	
MC_AbortTrigger	Touch Probe Disabled
MC_CamTableSelect	Cam Table Selection
MC_DigitalCamSwitc	Outputs the digital ca
MC_GroupDisable	Axes Group Disabled
MC_GroupEnable	Axes Group Enabled
MC_GroupReset	Axes Group Error Res
MC_GroupSetOverri	Axes Group Override
MC_Power	Operation Available
MC_ReadParameter	Parameter Read
MC_Reset	Axis Error Reset
MC_SetOverride	Override Value Setting
MC_SetPosition	Current Position Chan
MC_TouchProbe	Touch Probe Enabled
MC_WriteParameter	Parameter Write

3-4. [Ladder] Ezi-STEP 원점복귀 실행

- 원점복귀 실행 (MC_Home)

The screenshot displays the MELSOFT GX Works3 interface for editing a ladder logic program. The main workspace shows a network for MC_Home_1 (MC_Home) starting at step 20. The network includes a normally open contact labeled bAx1Home and a coil labeled bAx1HomeDo. The network is highlighted with a dashed yellow box. The right panel shows the Element Selection menu with MC_Home selected. The menu items include:

- CC-Link IE TSN Network module
- Add-on instructions
- Standard Function/Function Block
- Bit Type Boolean
- Type Conversion
- Arithmetic Operation
- Comparison
- Time Data Type
- Single Numeric Variable
- Selection
- String
- Bit Shift
- Edge Detection
- Counter
- Timer
- Bistable
- Motion Control Function/Function Block
- Administrative
- Motion - Individual
 - MC_CamIn Cam Operation Start
 - MC_CombineAxes Addition/Subtraction I
 - MC_GearIn Gear Operation Start
 - MC_GroupStop Group Forced Stop
 - MC_Home OPR
 - MC_MoveAbsolute Absolute Value Positio
 - MC_MoveRelative Relative Value Positio
 - MC_MoveVelocity Speed Control
 - MC_Stop Forced Stop
 - MC_TorqueControl Torque Control
 - MCv_AdvancedSync Advanced Synchronou
 - MCv_BacklashComp Backlash Compensatic
 - MCv_CyclicPosition Motion Cyclic Positio
- MC_Home
 - [Version]
 - 00A

3-5. [Ladder] Ezi-STEP 이동 동작 실행

- 이동 동작 실행 (MC_MoveAbsolute)

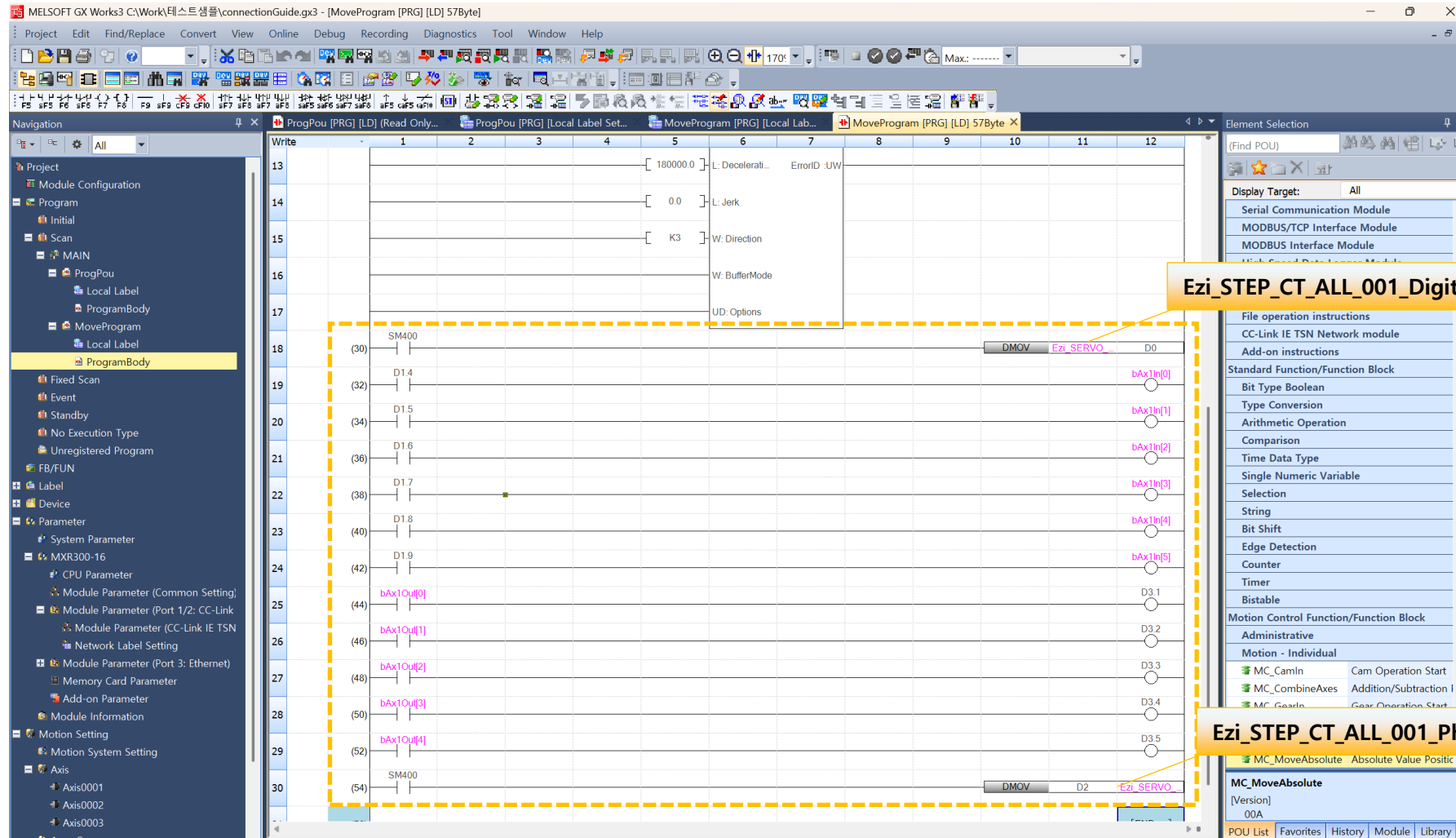
임의 설정 이동 Position

- bAx1PosPos1 ON → 3600.0
- bAx1PosPos1 ON → 0.0
- ※ 3,600 – 10회전

Symbol	Parameter Name	Value	Unit
[Axis001 A]	DUT: Axis		Axis :DUT
[edAx1Pos1]	L: Position		Active B
[3000.0]	L: Velocity	3000.0	Command B
[180000.0]	L: Accelerati...	180000.0	Error B
[180000.0]	L: Decelerati...	180000.0	ErrorID :UW
[0.0]	L: Jerk	0.0	
[K3]	W: Direction	K3	
	W: BufferMo...		
	UD: Options		

3-6. [Ladder] Ezi-STEP DIO 동작 실행

- Digital Input, Output 동작 실행



3-6. [Ladder] Ezi-STEP DIO 맵 - 참조

- Digital Inputs

비트 31	비트 30	비트 29	비트 28	비트 27	비트 26	비트 25	비트 24
-	Motor Power	TQOFF2	TQOFF1	-	-	User input 6	User input 5
비트 23	비트 22	비트 21	비트 20	비트 19	비트 18	비트 17	비트 16
User input 4	User input 3	User input 2	User input 1	Reserved	Reserved	Reserved	
비트 15	비트 14	비트 13	비트 12	비트 11	비트 10	비트 9	비트 8
-	-	-	-	-	-	-	-
비트 7	비트 6	비트 5	비트 4	비트 3	비트 2	비트 1	비트 0
-	-	-	-	-	Origin switch	Positive limit switch	Negative limit switch

- Physical Outputs

비트 31	비트 30	비트 29	비트 28	비트 27	비트 26	비트 25	비트 24
-	-	-	-	-	-	-	-
비트 23	비트 22	비트 21	비트 20	비트 19	비트 18	비트 17	비트 16
-	-	-	User output 5	User output 4	User output 3	User output 2	User output 1
비트 15	비트 14	비트 13	비트 12	비트 11	비트 10	비트 9	비트 8
-	-	-	-	-	-	-	-
비트 7	비트 6	비트 5	비트 4	비트 3	비트 2	비트 1	비트 0
-	-	-	-	-	-	-	Set brake

부 록

[동작 확인] Axis Monitor

- 각 축의 상태, 위치, 원점 복귀, Error 등을 모니터

Axis Monitor (CPU No. 1) Start I/O No. 3E00

Display Selection: Upper Pane
Monitor Type: Real Drive Axis
Monitor Item Selection
Monitor Axis Selection

Display Selection: Lower Pane
Monitor Type: Real Drive Axis
Monitor Item Selection
Monitor Axis Selection

Font Size: 9pt

	Axis #1	Axis #2	Axis #3	Axis #4	Axis #5
Axis Name	Axis0001	Axis0002	Axis0003	Axis0004	Axis0005
Axis Status	4:Standstill	4:Standstill	4:Standstill	4:Standstill	4:Standstill
Control Cycle	1	1	1	1	1
Position Command Unit Display	degree	degree	degree	degree	degree
Velocity Command Unit Display	degree/s	degree/s	degree/s	degree/s	degree/s
Set Position	0.10058283805847 d...	0.0 degree	0.0 degree	0.0 degree	0.0 degree
Actual Position	0.1003303527832 de...	0.0 degree	0.0 degree	0.0 degree	0.0 degree
Commanded Position	0.0 degree	0.0 degree	0.0 degree	0.0 degree	0.0 degree
Set Velocity	0.0 degree/s	0.0 degree/s	0.0 degree/s	0.0 degree/s	0.0 degree/s
Actual Velocity	-0.31650066375732 d...	0.0 degree/s	0.0 degree/s	0.0 degree/s	0.0 degree/s
Commanded Velocity	0.0 degree/s	0.0 degree/s	0.0 degree/s	0.0 degree/s	0.0 degree/s
Negative Direction Velocity Limit Value	2500000000.0 degree/s	2500000000.0 degree/s	2500000000.0 degree/s	2500000000.0 degree/s	2500000000.0 degree/s
Positive Direction Velocity Limit Value	2500000000.0 degree/s	2500000000.0 degree/s	2500000000.0 degree/s	2500000000.0 degree/s	2500000000.0 degree/s
Automatically Decelerating	FALSE	FALSE	FALSE	FALSE	FALSE
Command In-position	FALSE	TRUE	FALSE	FALSE	FALSE
Negative Direction Torque Limit Value	300.0 %	300.0 %	300.0 %	300.0 %	300.0 %
Positive Direction Torque Limit Value	300.0 %	300.0 %	300.0 %	300.0 %	300.0 %
Execution Profile ID No.	0	0	0	0	0
Homing Completed	FALSE	FALSE	FALSE	FALSE	FALSE
Homing Request	TRUE	TRUE	TRUE	TRUE	TRUE
Start Permission at Homing Uncompleted	FALSE	FALSE	FALSE	FALSE	FALSE
Upper Limit Signal Status	FALSE	FALSE	FALSE	FALSE	FALSE
Lower Limit Signal Status	FALSE	FALSE	FALSE	FALSE	FALSE
Forced Stop Cancelling	TRUE	TRUE	TRUE	TRUE	TRUE
Axis Error Detection	FALSE	FALSE	FALSE	FALSE	FALSE
Axis Error Code	H0000	H0000	H0000	H0000	H0000
Axis Warning Detection	FALSE	FALSE	FALSE	FALSE	FALSE
Axis Warning Code	H0000	H0000	H0000	H0000	H0000
Driver Ready On Status	TRUE	TRUE	TRUE	TRUE	TRUE
Driver Servo On Status	TRUE	TRUE	TRUE	TRUE	TRUE
Driver Status	6:Operation Enable	6:Operation Enable	6:Operation Enable	6:Operation Enable	6:Operation Enable
Drive Unit Error Detection	FALSE	FALSE	FALSE	FALSE	FALSE
Drive Unit Error Code	H0000	H0000	H0000	H0000	H0000
Drive Unit Error Detail Code	H0000	H0000	H0000	H0000	H0000

Motion Common Monitor

Monitor Item Selection

- Ready
- Synchronization flag
- Operation Cycle Monitor[1].Processing Time: 41000 ns
- Operation Cycle Monitor[1].Maximum Processing Time: 69960 ns
- Operation Cycle Monitor[1].Setting Cycle: 2000000 ns
- Operation Cycle Monitor[1].Cycle Over
- Operation Cycle Monitor[2].Processing Time: 36800 ns
- Operation Cycle Monitor[2].Maximum Processing Time: 73120 ns
- Operation Cycle Monitor[2].Setting Cycle: 8000000 ns
- Operation Cycle Monitor[2].Cycle Over
- Operation Cycle Monitor[3].Processing Time: 44440 ns
- Operation Cycle Monitor[3].Maximum Processing Time: 95960 ns
- Operation Cycle Monitor[3].Setting Cycle: 32000000 ns
- Operation Cycle Monitor[3].Cycle Over
- Forced Stop Cancelling
- Motion Area System Error Detection
- Latest Motion Area System Error Code: H0000
- Motion Area System Warning Detection
- Latest Motion Area System Warning Code: H0000

[Version] 00A
POU List Favorites History Module Library

[동작 확인] 원점복귀 방법 변경

● 모션제어 FB을 사용하여 원점복귀 방식 변경 가능

- ① ParameterNumber 지정 : H60980008
- ② Value(Homing Method) 지정 : 33.0
- ③ ExecutionMode : TRUE (쓰기)
- ④ Done : TRUE가 됨

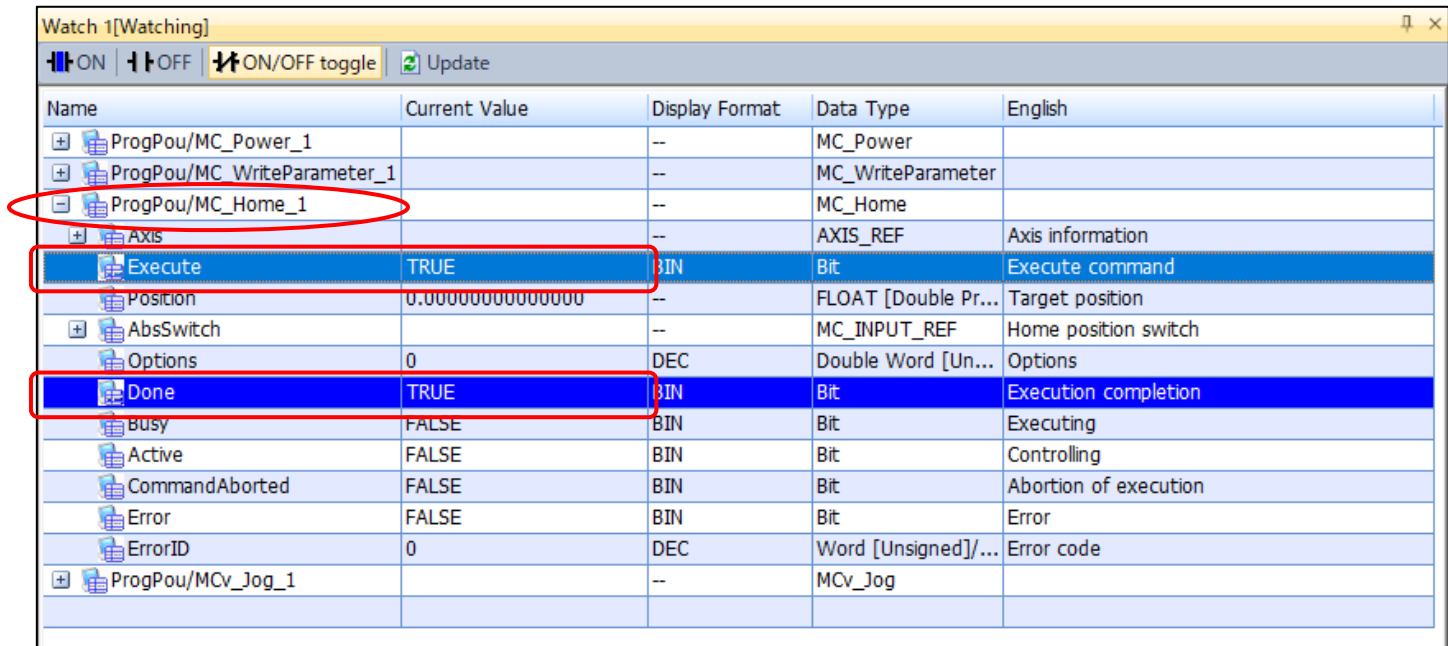
원점복귀 방법은 Homing method(6098h)에 설정한 값에 따라 다음과 같이 분류됩니다.

설정값	내용
1	Homing on negative limit switch and index pulse
2	Homing on positive limit switch and index pulse
7	Homing on home switch (positive direction, negative edge) and index pulse
10	Homing on home switch (positive direction, positive edge) and index pulse
11	Homing on home switch (negative direction, positive edge) and index pulse
14	Homing on home switch (negative direction, negative edge) and index pulse
17	Homing on negative limit switch
18	Homing on positive limit switch
24	Homing on home switch (positive direction, negative edge)
25	Homing on home switch (positive direction, positive edge)
28	Homing on home switch (negative direction, positive edge)
29	Homing on home switch (negative direction, negative edge)
33	Homing index pulse (negative direction)
34	Homing index pulse (positive direction)
35	Set the current position origin
37	Set the current position origin and reset current position
-3	Homing on negative mechanical limit
-4	Homing on positive mechanical limit
-5	Homing on negative mechanical limit and index pulse
-6	Homing on positive mechanical limit and index pulse

Name	Current Value	Display Format	Data Type	English
ProgPou/MC_Power_1		--	MC_Power	
ProgPou/MC_WriteParameter_1		--	MC_WriteParameter	
Axis		--	AXIS_REF	Axis information
Execute	TRUE	BIN	Bit	Execute command
ParameterNumber	H60980008	HEX	Word [Unsigned]/...	Setting value
Value	37.00000000000000	BIN	Double Word [Un...]	Setting value
ExecutionMode	0	DEC	Word [Signed]	Execution mode
Options	0	DEC	Double Word [Un...]	Options
Done	TRUE	BIN	Bit	Execution completion
Busy	FALSE	BIN	Bit	Executing
Error	FALSE	BIN	Bit	Error
ErrorID	H0000	HEX	Word [Unsigned]/...	Error code
SDOErrorID	H00000000	HEX	Double Word [Un...]	Transient error code
SDOStatus	1	DEC	Word [Unsigned]/...	SDO transfer status
ProgPou/MC_Home_1		--	MC_Home	
ProgPou/MCv_Jog_1		--	MCv_Jog	

[동작 확인] 원점복귀

- 모션제어 FB을 사용하여 원점 복귀 실행
 - ① Execute → TRUE (쓰기)
 - ② Done → TRUE가 됨



Name	Current Value	Display Format	Data Type	English
ProgPou/MC_Power_1		--	MC_Power	
ProgPou/MC_WriteParameter_1		--	MC_WriteParameter	
ProgPou/MC_Home_1		--	MC_Home	
AXIS		--	AXIS_REF	Axis information
Execute	TRUE	BIN	Bit	Execute command
Position	0.0000000000000000	--	FLOAT [Double Pr...	Target position
AbsSwitch		--	MC_INPUT_REF	Home position switch
Options	0	DEC	Double Word [Un...	Options
Done	TRUE	BIN	Bit	Execution completion
Busy	FALSE	BIN	Bit	Executing
Active	FALSE	BIN	Bit	Controlling
CommandAborted	FALSE	BIN	Bit	Abortion of execution
Error	FALSE	BIN	Bit	Error
ErrorID	0	DEC	Word [Unsigned]/...	Error code
ProgPou/MCv_Jog_1		--	MCv_Jog	

- Ezi-STEP CC-Link IE TSN ALL의 LIMIT+ / LIMIT- 신호를 하드웨어 스트로크 리밋으로 사용하는 경우, 기동(시작) 전에 아래의 축 제어 데이터를 설정해 주십시오.
[AxisName.Cd.HwStrokeLimit_Override] → 'DISABLE'

[동작 확인] Jog 운전

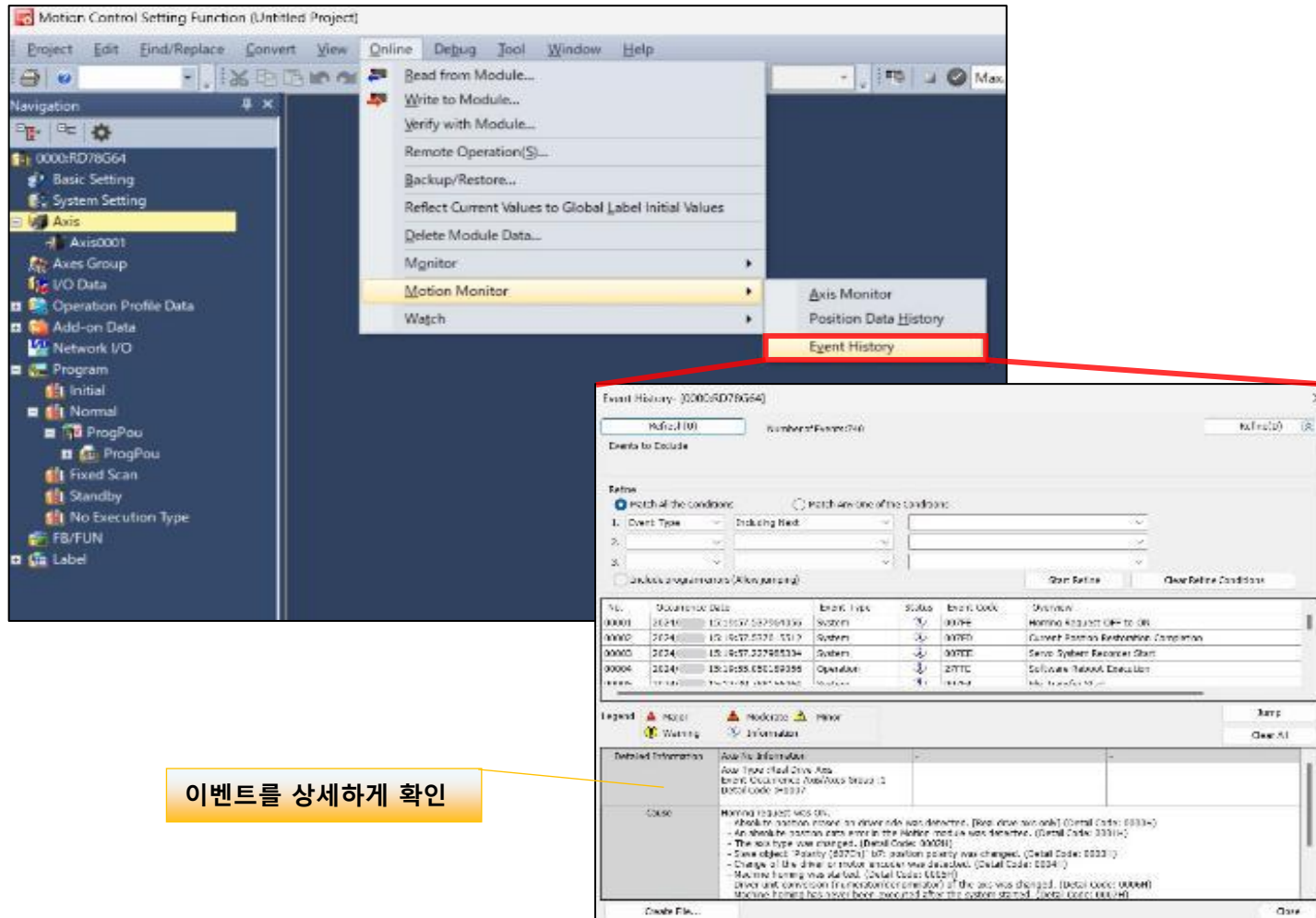
- 모션제어 FB을 사용하여 Jog 운전 실행
 - ① Velocity → 100.0
 - ② Acceleration → 100.0
 - ③ Deceleration → 100.0
 - ④ JogForward → TRUE (쓰기)

Name	Current Value	Display Format	Data Type	English
ProgPou/MC_Power_1		--	MC_Power	
ProgPou/MC_WriteParameter_1		--	MC_WriteParameter	
ProgPou/MC_Home_1		--	MC_Home	
ProgPou/MCv_Jog_1		--	MCv_Jog	
Axis		--	AXIS_REF	Axis information
JogForward	TRUE	BIN	Bit	Positive rotation JOG command
JogBackward	FALSE	BIN	Bit	Reverse rotation JOG command
Velocity	100.00000000000000		FLOAT [Double Pr...	Velocity
Acceleration	100.00000000000000		FLOAT [Double Pr...	Acceleration
Deceleration	100.00000000000000		FLOAT [Double Pr...	Deceleration
Jerk	0.0000000000000000	--	FLOAT [Double Pr...	Jerk
Options	0	DEC	Double Word [Un...	Options
Done	FALSE	BIN	Bit	Execution completion
Busy	TRUE	BIN	Bit	Executing
Active	TRUE	BIN	Bit	Controlling
CommandAborted	FALSE	BIN	Bit	Abortion of execution
Error	FALSE	BIN	Bit	Error
ErrorID	0	DEC	Word [Unsigned]/...	Error code

[동작 확인] 트러블슈팅

- 에러 발생 시에는 이벤트 이력(기록)에서 원인을 확인

① [Online] -> [Motion Monitor] -> [Event History]



[동작 확인] 트러블슈팅

- “SLMP 통신 이상”(1C43h) 이 발생한 경우
→ 축 파라미터 설정을 참조하여 오브젝트 데이터를 설정해 주십시오.
- “MELSERVO 이외의 드라이브 유닛 접속 설정 오류 경고”(0D4Ch) 가 발생한 경우
→ 축 파라미터 설정을 참조하여 절대 위치 시스템을 비활성화해 주십시오.
- MC_Home을 기동하면 “제어 모드 전환 이상”(1A1Dh) 이 발생하는 경우
→ 네트워크 구성 설정(드라이버 추가)에서
Network Synchronous Communication을 **“Synchronous”**로 설정해 주십시오.
- 드라이브의 LIMIT+ / - 신호를 사용하는 방식으로 MC_Home을 기동하면, 상/하한 리밋 신호를 검출하여 정지
→ [AxisName.Cd.HwStrokeLimit_Override] 를 ‘DISABLE’ 로 설정하고,축 제어 데이터를 프로그램 등에서 설정해 주십시오.

[파라미터] 원점복귀 파라미터 설정

- 원점복귀와 관련된 각종 설정은 다음 오브젝트에서 수행
 - MC_WriteParameter를 사용하여 설정값을 기록합니다.
 - 각 오브젝트의 상세 내용은 Ezi-STEP CC-Link IE TSN ALL 매뉴얼을 참조해 주십시오.

오브젝트 명	Index: Subindex	설정 내용
Home offset	Obj.607C: 00h	기계 좌표계의 제로 위치와 원점복귀 위치의 차이
Homing method	Obj.6098: 00h	원점복귀 방식
Homing speeds	Obj.6099: 01h	원점복귀 속도
Homing speeds	Obj.6099: 02h	원점복귀 중 Cliff 속도
Homing acceleration	Obj.609A: 00h	원점복귀 중 가속도



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